ERI-2 - 18.38	OHIO
	FHWA REGION 5
F-73-(5)	FEDERAL PROJECT

1/326

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

DESIGN DESIGNATION	
CURRENT YEAR 1985 A.D.T.	12,480
DESIGN YEAR 2005 A.D.T.	17,830
D.H.V.	1,780
D (DIRECTIONAL DISTRIBUTION)	55%
T (PERCENT B & C TRUCKS)	15%
V (DESIGN SPEED)	70 M.P.H.

PID 02940
C No. 860271

ERI-2-18.38 F-73-(5)

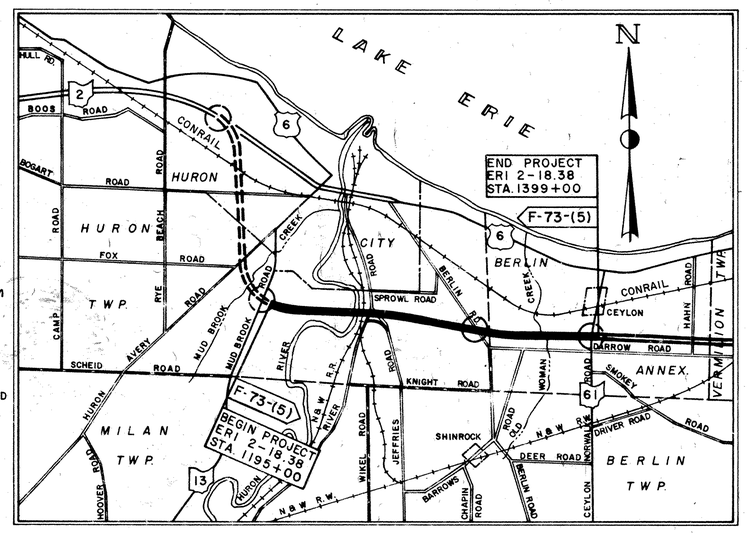
ERIE COUNTY
HURON TOWNSHIP - BERLIN ANNEXATION TWP.
GRADE SEPARATION WITH THE NORFOLK & WESTERN RAILWAY

MICROFILMED
NOV 30 1985

CONVENTIONAL SIGNS

COUNTY LINE
TOWNSHIP LINE
CORPORATION LINE
CENTER LINE
PROPERTY LINE
EXISTING R/W LINE
EXISTING LA LINE
RIGHT OF WAY LINE,
LIMITED ACCESS LINE
TEMPORARY CHANNEL EASEMENT
CONSTRUCTION LIMITS
FENCE LINE (EXISTING, PROPOSED)
GUARD RAIL (EXISTING, PROPOSED)
RAIL ROAD
POLE LINE (POWER, TELEPHONE)
UNDERGROUND UTILITIES (GAS, WATER)
EXISTING STREET LIGHT
TILE, DRAIN PIPE
EXISTING TREES & STUMPS
EXISTING TREES & STUMPS TO BE REMOVED

INDEX OF SHEETS



LOCATION MAP
SCALE OF MILES
0 1 2 3 4

STATE HIGHWAYS
OTHER HIGHWAYS (FREEWAYS)
OTHER ROADS
FUTURE IMPROVEMENTS
PORTION TO BE IMPROVED
PROPOSED INTERCHANGE

SCALES

	GRAPHIC
PLAN 1" = 50'	0 20 40 60 80 100
PROFILE HORIZONTAL 1" = 50'	
PROFILE VERTICAL 1" = 5'	0 5 10
CROSS SECTIONS 1" = 10'	0 5 10 15 20

(OR AS NOTED ON THE PLAN)

LINE DATA

BEGIN PROJECT	STA. 1195+00.00
END PROJECT	STA. 1399+00.00
LENGTH OF PROJECT	20,400.00 L.F. OR 3.864 MI.
ADD FOR WORK	
S.R. 2	
STA. 1170+00.00 TO STA. 1195+00.00	2,500.00 L.F.
STA. 1399+00.00 TO STA. 1424+25.00	2,525.00 L.F.
RIVER ROAD	
STA. 10+00.00 TO STA. 25+04.00	1,504.00 L.F.
JEFFRIES ROAD	
STA. 12+50.00 TO STA. 22+13.52	963.52 L.F.
BERLIN ROAD	
STA. 6+00.00 TO STA. 33+00.00	2,700.00 L.F.
S.R. 61	
STA. 32+00.00 TO STA. 64+00.00	3,200.00 L.F.
HOFFMAN ACCESS ROAD	
STA. 0+12.77 TO STA. 7+25.00	712.23 L.F.
O'RORK ACCESS ROAD	
STA. 17+43.77 TO STA. 21+83.65	439.88 L.F.
LENGTH OF WORK	34,944.63 L.F. OR 6.618 MI.

UNDERGROUND UTILITIES
2 WORKING DAYS
BEFORE YOU DIG
CALL....800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

PREPARED BY:
adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO

Steven V. Ciuni
STEVEN V. CIUNI
Willis C. Lynn
WILLIS C. LYNN

STATE OF OHIO — Steven V. Ciuni — 23393 — Willis C. Lynn — REGISTERED PROFESSIONAL ENGINEER

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

1985 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway, except as noted on sheets 2C - 2F, and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

SUPPLEMENTAL SPECIFICATIONS	
846	10-3-85
848	10-2-85
814	1-1-69
824	10-8-82
836	11-12-85
847	10-17-83
853	6-26-78
932	3-25-85
947	10-17-83
956	6-26-78
SPECIAL PROVISIONS	
REINFORCED EARTH WALLS	1-7-86
RETAINED EARTH WALLS	1-7-86

Approved Harry W. Sims
Date 11/27/85 District Deputy Director of Transportation

Approved Walter J. Jestings MB
Date 1/10/86 Engineer, Bureau of Bridges and Structural Design

Approved Wayne H. Kauble
Date 1-30-86 Chief Engineer, Planning and Design

Approved Warren J. Smith
Date 1-30-86 Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE	DRAWING	DATE
AS-1-81	11-27-81	CB-2-24A	5-1-79	GR-1	1-11-85	HW-4B	4-1-80	MH-1	12-18-84	HL-9	3-22-77	TC-12.30	1-20.84	TC-41.50	3-26-79		
BP-1	6-1-65	CB-2-38Z-4	5-1-79	GR-2B	2-5-82	MC-1	6-13-69	MH-3	12-18-84	HL-10	12-28-84			TC-42.10	8-19-77		
BP-2	1-11-85	CB-4	11-10-83	GR-3	1-21-85	MC-4	7-26-76	MH-5	6-12-75	HL-11	6-1-79	TC-21.20	1-20-84	TC-42.20	3-26-79		
BP-3	12-6-76	CB-5	11-10-83	GR-3B	1-21-85	LA-1	6-1-79	MH-2	6-12-75	HL-12	12-28-84	TC-22.10	3-1-79	TC-51.10	1-20-84		
BP-4	1-11-85	CB-6	5-1-79	GR-4	2-5-82	MC-6	1-30-84	HL-1	12-28-84	HL-15	12-28-84	TC-22.20	3-1-79	TC-51.11	1-20-84		
BP-5	1-11-85	CB-8	11-10-83	GR-4A	1-30-84	MC-7	10-15-76	HL-2	7-27-73	HL-16	12-28-84			TC-52.10	4-3-79		
BP-6	6-1-65	CB-458A	5-1-79	GR-4B	2-5-82	MC-8	6-12-75	HL-3	12-28-84	BR-1	5-29-79	TC-31.21	3-6-79	TC-52.20	4-3-79		
BP-7	12-6-76	F-2	5-1-76	GR-5	2-5-82	MC-9	1-30-84	HL-4	1-21-76	RB-1-55	2-2-59	TC-32.10	3-8-79	TC-61.10	4-5-82		
BP-9	12-6-76	F-3	5-1-76	GR-6	2-5-82	MC-10	5-1-76	HL-5	9-6-73	SD-1-69	6-12-69	TC-35.10	8-29-84	TC-71.10	4-9-79		
BP-10	1-30-84	F-5	5-1-76	GR-6A	2-5-82	MC-11	8-1-78	HL-7	1-21-76	EXJ-2-81	4-2-84	TC-41.10	8-29-84	TC-72.20	2-26-82		
CPP-2-73	4-10-73	F-6	5-1-76	HW-4A	4-1-80			HL-8	1-21-76	PSBD-1-81	9-18-81	TC-41.20	3-26-79				

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

PROJECT: ERI-2-18.38
DATE OF LETTING _____ 19__, CONTRACT Nº ____

TITLE SHEET

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO			2 / 326

ERIE COUNTY
ERI. 2-18.38

SCHEMATIC PLAN


SCALE IN FEET
0 200 400 800 1200 1600 2000
℄ S.R. 2 CURVE #2 DATA
P.I. STA. 1191+14.95
Δ = 87°18'50"
Dc = 2°00'
Ls = 300.00'
θs = 3°00'
P = 1.30'
k = 149.99'
Yc = 5.24'
Xc = 299.92'
R = 2864.79
θc = 1°00'
Ts = 2884.77'
Es = 1096.71'
Δc = 81°18'50"
Lc = 4065.69'
C = .0001111 (SPIRAL)
C = .6 (SIMPLE)
BEGIN WORK STA. 1170+00
PROJECT ERI-2-16.13 UNDER CONSTRUCTION
BEGIN PROJECT ERI-2-18.38 STA. 1195+00
F-73 (4)
F-73 (5)
RAMP #4
RAMP #5
S.R. 13
C.S. STA. 1205+95.87
S.T. STA. 1208+95.87
STA. 1227+90 MEDIAN CROSSOVER
STA. 1227+50 MEDIAN BASIN
CITY OF HURON CORPORATION LINE
SPROWL RD.
S.R. 2
S 88°-42'-02" E
END WORK STA. 22+13.52
BR. # ERI-2-1911 L/R
FLOW
HURON RIVER
NEW RIVER
A.A. ROAD
END WORK STA. 25+04
JEFFRIES ROAD
JEFFRIES ROAD RELOCATION
WINKLER DITCH RELOC.
EXIST. WINKLER DITCH
BEGIN WORK STA. 10+00
BEGIN WORK STA. 12+50
P.C. STA. 1271+67.28
STA. 1276+75 MEDIAN BASIN
STA. 1277+25 MEDIAN CROSSOVER
STA. 1277+75 MEDIAN BASIN
P.T. STA. 1285+29.18
℄ S.R. 2 CURVE #3 DATA
Δ = 6°21'20"
D = 0°28'00'
R = 12,277.67'
T = 681.65'
L = 1,361.90'
E = 18.91'
P.I. STA. 1278+48.93
S 82° 20' 42" E
MATCH LINE STA. 1305+00
N
NOTE: The Contractor shall cooperate with adjacent Contractor as per 105.07.
BEGIN WORK STA. 0+12.77
CONRAIL CORP.
END WORK STA. 64+00
END WORK STA. 21+83.65
END PROJECT ERI-2-18.38 STA. 1399+00
PROJECT NO. ERI-2-22.24
F-73 (5)
F-115 (6)
O'RORK ACCESS ROAD
HOFFMAN ACCESS ROAD
℄ S.R. 2 STA. 1397+99.79
BR. # ERI-2-2222
BEGIN WORK STA. 17+43.77
END WORK STA. 1424+25
END WORK STA. 7+25
RAMP "C"
RAMP "D"
RAMP #10
RAMP #11
S 89° 39' 42" E
℄ S.R. 2 CURVE #4 DATA
Δ = 11°56'30"
D = 0°28'
R = 12,277.67'
T = 1284.12'
L = 2558.93'
E = 66.97'
P.I. STA. 1351+94.60
BERLIN
END WORK STA. 33+00
HURON TWP.
BERLIN TWP. ANNEX
P.C. STA. 1339+10.48
OLD WOMAN CREEK NATIONAL ESTUARINE SANCTUARY
P.T. STA. 1364+69.41
STA. 1372+60 MEDIAN CROSSOVER
STA. 1380+43
STA. 1373+00 MEDIAN BASIN
N 85°-42'-48" E
STA. 1386+88
P.C. STA. 1392+50.74
BEGIN WORK STA. 32+00
S.R. 61
TEMP. ROAD
STA. 4+40
CARVER AC. RD. (TEMP. RD TO REMAIN)
℄ S.R. 2 CURVE #5 DATA
Δ = 4°37'30"
D = 0°15'
R = 22,918.31'
T = 925.50'
L = 1850.00'
E = 18.68'
P.I. STA. 1401+75.24
P.T. STA. 1411+00.74
℄ S.R. 2 STA. 1323+92.49
BR. # ERI-2-2082
RAMP #6
RAMP #7
RAMP #8
RAMP #9
BEGIN WORK STA. 6+00
MATCH LINE STA. 1305+00
S 82°-20'-42" E
STA. 1346+00
BR. # ERI-2-2154 L/R
OLD WOMAN CREEK
NAT. ESTUARINE SANCTUARY
DARROW ROAD
EXISTING STRUCTURE
℄ S.R. 61 STA. 38+99.25 = ℄ DARROW RD. STA. 0+00
℄ DARROW RD. STA. 2+00.23 = ℄ TEMP. RD. & CARVER AC. RD. STA. 0+00

RAMP LINE DATA

RAMP #4	STA. 1191+28.48 - 1200+39.04	=	910.56
RAMP #5	STA. 1191+91.78 - 1205+00	=	1308.22
	PAVEMENT TOTAL		2218.78

RAMP LINE DATA

RAMP #6	STA. 1308+65 - 1320+80.16	=	1215.16
RAMP #7	STA. 1316+53.48 - 1328+48.66	=	1195.18
RAMP #8	STA. 1319+38.41 - 1331+46.52	=	1208.11
RAMP #9	STA. 1327+05 - 1339+10.48	=	1205.48
	PAVEMENT TOTAL		4823.93

RAMP LINE DATA

RAMP #10	STA. 1384+75 - 1398+91.62	=	1416.62
RAMP #11	STA. 1387+63.48 - 1397+58.90	=	995.42
RAMP "C"	STA. 1398+01.28 - 1400+25	=	223.72
RAMP "D"	STA. 1397+43.32 - 1400+00	=	256.68
	PAVEMENT TOTAL		2,892.44

ADACHE ASSOCIATES INC., ENGINEERS
CLEVELAND 42, OHIO

SCHEMATIC PLAN

DESIGNED	DRAWN	CHECKED	REVISED	DATE
M.J.R. 6-7-68	M.J.R. 6-7-68	R.J.Z. 4-9-70		

ADACHE · CIUNI · LYNN ASSOC.
CALC. BY: R.W.H. DATE: 12-8-83
CHKD. BY: L.E.D. DATE: JAN.-84

SCHEMATIC PLAN
EROSION CONTROL ITEMS

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

2A
326

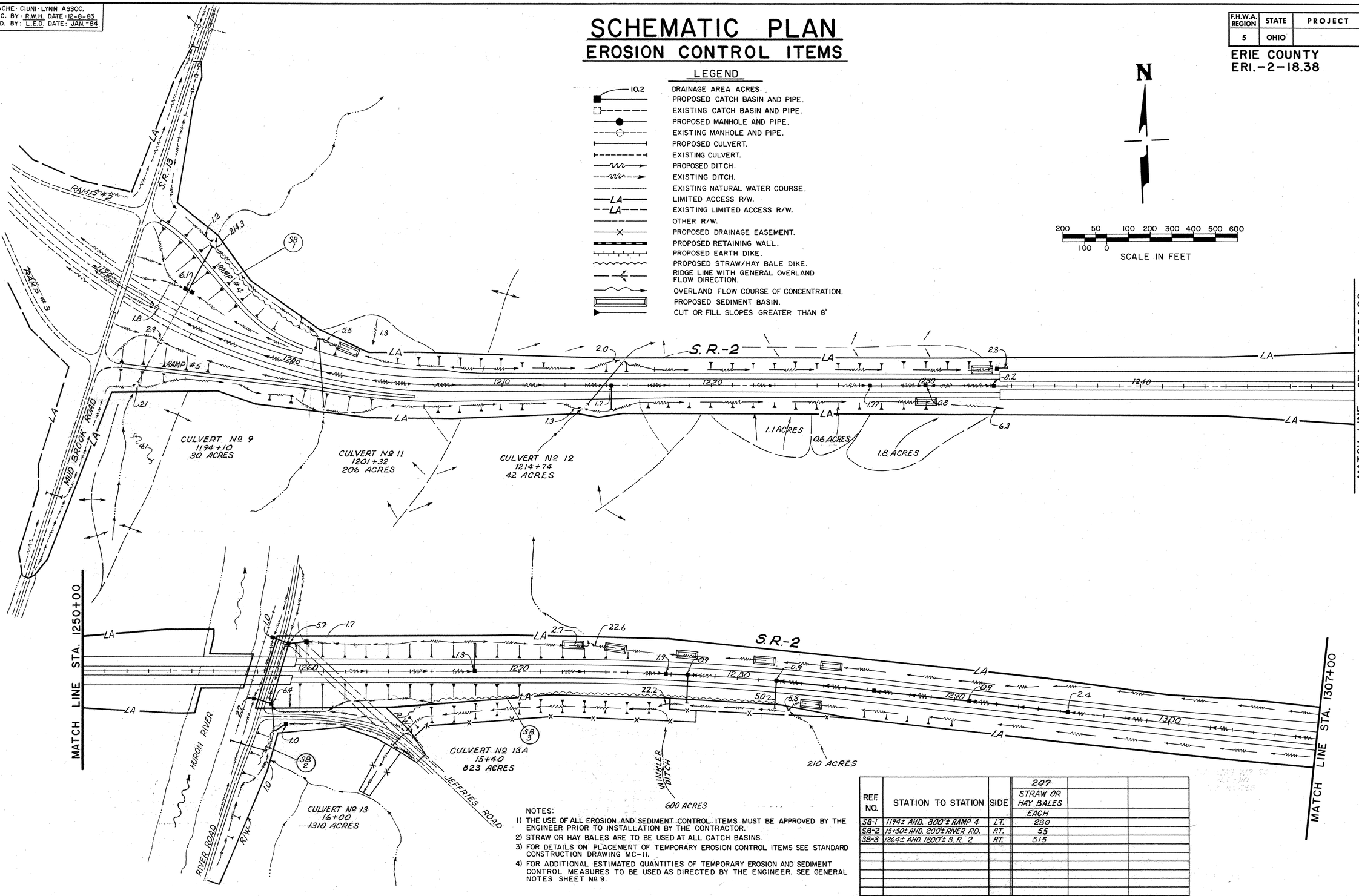
ERIE COUNTY
ERI.-2-18.38

LEGEND

- 10.2 — DRAINAGE AREA ACRES.
- PROPOSED CATCH BASIN AND PIPE.
- EXISTING CATCH BASIN AND PIPE.
- PROPOSED MANHOLE AND PIPE.
- EXISTING MANHOLE AND PIPE.
- PROPOSED CULVERT.
- EXISTING CULVERT.
- PROPOSED DITCH.
- EXISTING DITCH.
- EXISTING NATURAL WATER COURSE.
- LA — LIMITED ACCESS R/W.
- LA — EXISTING LIMITED ACCESS R/W.
- OTHER R/W.
- PROPOSED DRAINAGE EASEMENT.
- PROPOSED RETAINING WALL.
- PROPOSED EARTH DIKE.
- PROPOSED STRAW/HAY BALE DIKE.
- RIDGE LINE WITH GENERAL OVERLAND FLOW DIRECTION.
- OVERLAND FLOW COURSE OF CONCENTRATION.
- PROPOSED SEDIMENT BASIN.
- CUT OR FILL SLOPES GREATER THAN 8'

N

200 50 100 200 300 400 500 600
100 0
SCALE IN FEET



NOTES:
1) THE USE OF ALL EROSION AND SEDIMENT CONTROL ITEMS MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION BY THE CONTRACTOR.
2) STRAW OR HAY BALES ARE TO BE USED AT ALL CATCH BASINS.
3) FOR DETAILS ON PLACEMENT OF TEMPORARY EROSION CONTROL ITEMS SEE STANDARD CONSTRUCTION DRAWING MC-11.
4) FOR ADDITIONAL ESTIMATED QUANTITIES OF TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES TO BE USED AS DIRECTED BY THE ENGINEER. SEE GENERAL NOTES SHEET Nº 9.

REF. NO.	STATION TO STATION	SIDE	207 STRAW OR HAY BALES EACH		
SB-1	1194± AHD. 800'± RAMP 4	LT.	230		
SB-2	15+50± AHD. 200'± RIVER RD.	RT.	55		
SB-3	1264± AHD. 1800'± S. R. 2	RT.	515		
TOTALS			800		

SCHEMATIC PLAN EROSION CONTROL ITEMS

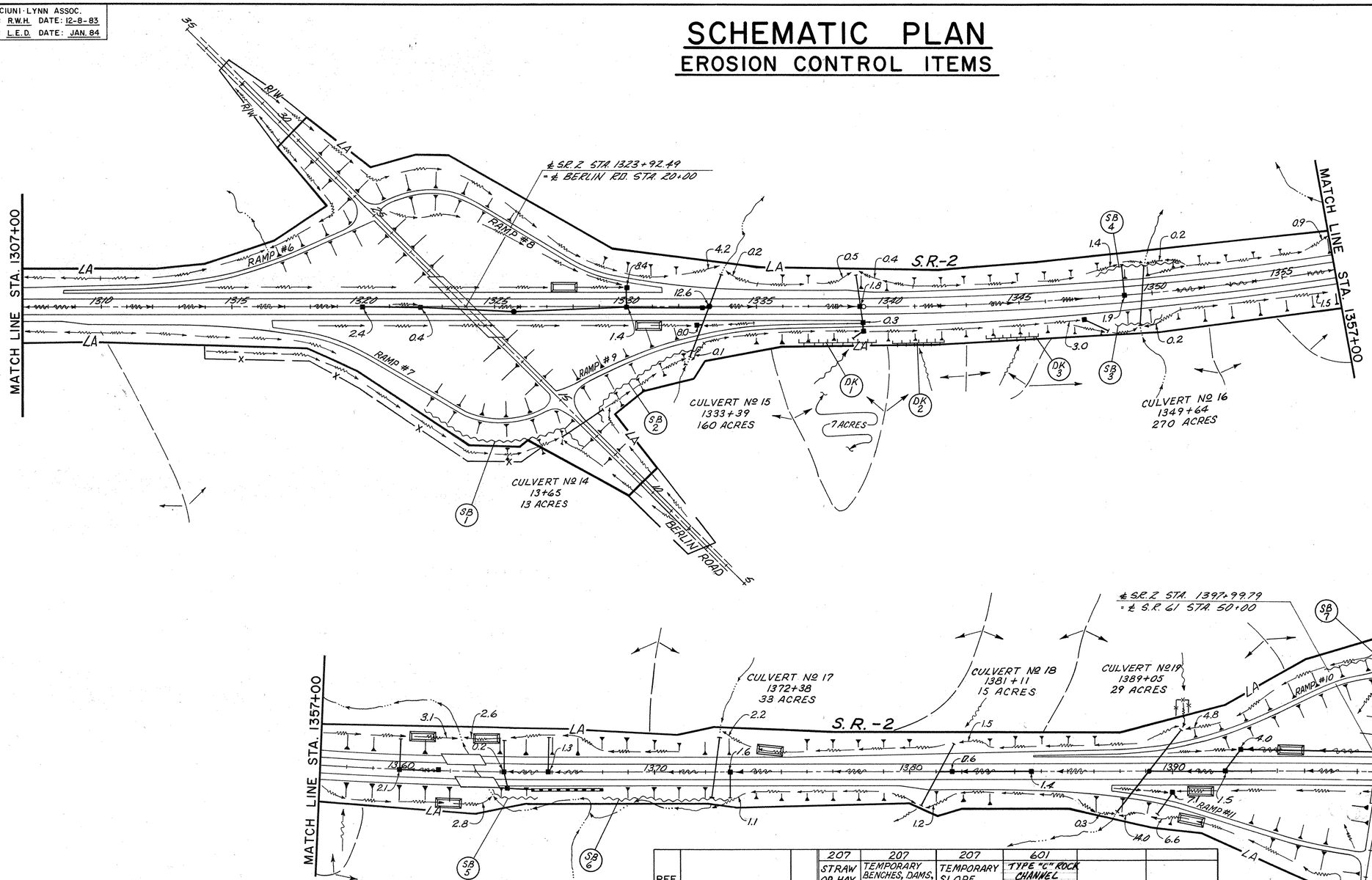
ADACHE · CIUNI · LYNN ASSOC.
CALC. BY: R.W.H. DATE: 12-8-83
CHKD. BY: L.E.D. DATE: JAN. 84

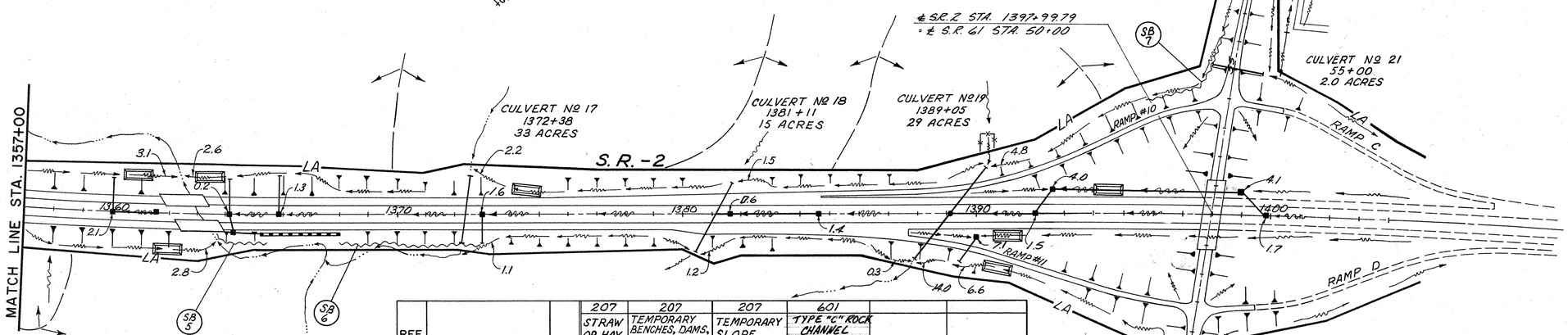
SCHEMATIC PLAN
EROSION CONTROL ITEMS

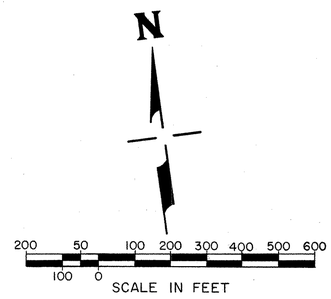
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

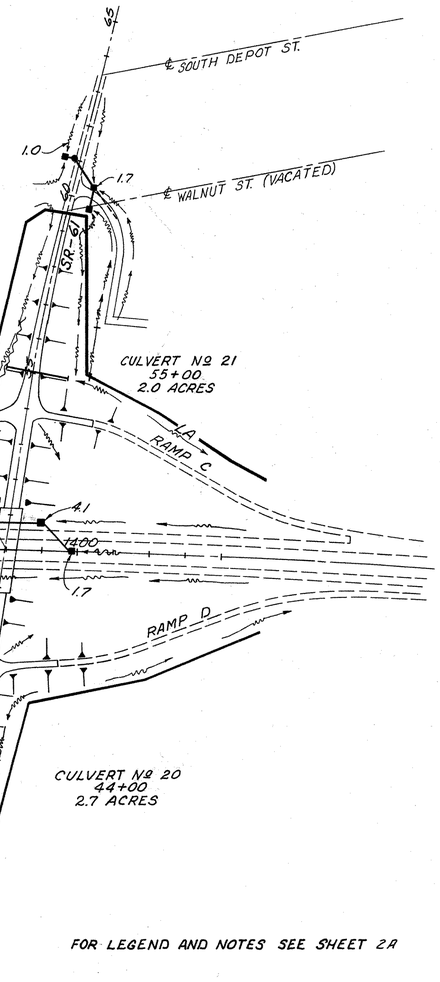
2B
326

ERIE COUNTY
ERI.-2-18.38









REF. NO.	STATION TO STATION	SIDE	207 STRAW OR HAY BALES EACH	207 TEMPORARY BENCHES, DAMS, DIKES & SEDIMENT BASINS C.Y.	207 TEMPORARY SLOPE DRAINS LIN. FT.	601 TYPE "C" ROCK CHANNEL PROTECTION WITH FILTER C.Y.		
SB-1	1322± AHD. 600'± RAMP 7	RT.	172					
SB-2	1328± AHD. 600'± RAMP 9	RT.	172					
SB-3	1348+50± AHD. 200'± S.R-2	RT.	58					
SB-4	1348± AHD. 300'± S.R-2	LT.	86					
SB-5	1364± AHD. 150'± S.R. 2	RT.	43					
SB-6	1368± AHD. 500'± S.R. 2	RT.	143					
SB-7	1396+50± AHD. 400'± RAMP 10 & S.R. 61	LT.	115					
DK-1	1336+50± AHD. 300'± S.R-2	RT.		90	40	1		
DK-2	1340± AHD. 200'± S.R. 2	RT.		60	50	1		
DK-3	1343+50± AHD. 200'± S.R-2	RT.		60	45	1		
TOTALS			789	210	135	3		

FOR LEGEND AND NOTES SEE SHEET 2A

SCHEMATIC PLAN EROSION CONTROL ITEMS

STRUCTURAL GENERAL NOTES

ERI-2-19.11 S.R. 2 OVER HURON RIVER

RECEIVED
FEB 4 1982

CALC. ____ DATE ____
CHKD. ____ DATE ____
OHIO
F.H.W.A. REGION 5

205
326

ERIE COUNTY
ERI-2-18.38

THE FOLLOWING GENERAL NOTES APPLY TO THESE STRUCTURES:

BRIDGE NO. ERI-2-1911 L/R S.R. 2 OVER HURON RIVER: ALTERNATE-1
BRIDGE NO. ERI-2-1911 L/R S.R. 2 OVER HURON RIVER: ALTERNATE-2

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

APPROACH SLAB DETAILS	AS-1-81	SHEETS 1, 2 AND 3 OF 3	DATED 11-27-81
BRIDGE RAILING DETAILS	BR-1		DATED 5-29-79
ROCKER AND BOLSTER DETAILS	RB-1-55		REVISED 2-02-59
SUPERSTRUCTURE DETAILS	SD-1-69	SHEETS 1, 2, 3 AND 4 OF 4	DATED 6-12-69
COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	EXJ-2-81	SHEETS 1 AND 2 OF 2	REVISED 4-2-84
CAPPED PILE PIER	CPP-2-73	SHEET 1 OF 1	DATED 4-10-73

AND TO SUPPLEMENTAL SPECIFICATIONS:

824	EPOXY COATED REINFORCING STEEL	DATED 10-8-82
836	CONCRETE CURING AND PROTECTIVE MEMBRANE	DATED //-12-85

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE 1978, 1979, 1980, 1981, 1982 AND 1983 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING - HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS S - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)
CONCRETE CLASS C - UNIT STRESS 1333 PSI (SUBSTRUCTURE)
REINFORCING STEEL - ASTM A615, A616 OR A 617 GRADE 60; MINIMUM YIELD STRENGTH 60,000 PSI; UNIT STRESS 24,000 PSI
STRUCTURAL STEEL - ASTM A588 - UNIT STRESS 27,000 PSI
CONCRETE FOR PRESTRESSED BEAMS - UNIT STRESS 2200 PSI COMPRESSION, 444 PSI TENSION
PRESTRESSING STRAND - ASTM A416 F'S = 270,000 PSI, INITIAL STRESS = 0.70 F'S

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MATS.

MONOLITHIC WEARING SURFACE:

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

EMBANKMENT CONSTRUCTION:

EMBANKMENT AT THE BRIDGES SHALL BE CONSTRUCTED AS PER THE SPECIAL EMBANKMENT REQUIREMENTS SPECIFIED IN THE ROADWAY PLAN GENERAL NOTES, SHEET 10.

THE EMBANKMENT SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FROM STA. 1232+00 TO STA. 1233+75± AT ABUTMENT NO. 1 L/R AND FROM STA. 1258+80± TO STA. 1279+00 AT ABUTMENT NO. 2 L/R. THERE SHALL BE A MINIMUM WAITING PERIOD OF FOUR MONTHS AFTER COMPLETION OF THE EMBANKMENT TO SUBGRADE PRIOR TO EXCAVATING AND DRIVING PILES FOR THE FOLLOWING ABUTMENTS AND PIERS:

ALTERNATE-1; ABUTMENTS 1 L/R AND 2 L/R, PIER 22 L/R
ALTERNATE-2; ABUTMENTS 1 L/R AND 2 L/R, PIER 26 L/R

ITEM 507, 16" AND 18" DIAMETER CAST IN PLACE CONCRETE PILES, AS PER PLAN:

STEEL CASINGS SHALL BE PLAIN AND CYLINDRICAL AND SHALL MEET THE REQUIREMENTS OF ASTM A252 GRADE 2, MINIMUM YIELD STRESS 35,000 PSI. MINIMUM CASING WALL THICKNESS SHALL BE 0.500" (1/2"). THE CASINGS SHALL EXTEND THE FULL PILE LENGTH AND SHALL BE FILLED WITH CLASS C CONCRETE. SPLICES OF THE STEEL CASINGS, IF NECESSARY, SHALL BE MADE BY FULL BUTT WELDS, MADE IN ACCORDANCE WITH 513.17.

PILE DRIVING:

PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE PILE HAMMER USED TO INSTALL THE PILES MAY NEED TO HAVE A STATE ENERGY RATING OF APPROXIMATELY 30,000 FOOT-POUNDS. THE HAMMER SIZE MENTIONED IN THIS NOTE IS TO BE CONSIDERED ONLY AS A SUGGESTION AND DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES TO OBTAIN THE STATE'S ENERGY RATING.

PILE DESIGN LOADS:

THE DESIGN LOAD FOR THE ABUTMENT 1 L/R PILES (STEEL PILE HP 12 X 53) IS 50 TONS PER PILE. THE DESIGN LOAD FOR THE PIER PILES ARE AS FOLLOWS:

16" DIAMETER CAST IN PLACE CONCRETE PILES	250 TONS PER PILE
18" DIAMETER CAST IN PLACE CONCRETE PILES	300 TONS PER PILE
STEEL PILES HP 14 X 89	150 TONS PER PILE

THE DESIGN LOAD FOR THE ABUTMENT 2 L/R PILES (STEEL PILES HP 12 X 53) IS 55 TONS PER PILE.

ITEM 507, STEEL POINTS, AS PER PLAN:

THE STEEL "H" BEARING PIER PILES MAY BECOME DAMAGED WHEN DRIVEN TO REFUSAL IN THE HARD CLAY SHALE BEDROCK. AFTER REVIEWING THE RESULTS OF THE STATIC LOAD TESTS AND RETRIEVING AND EXAMINING THE TEST PILE, THE DIRECTOR WILL DETERMINE IF THE TIPS OF THE PIER PILES SHALL BE PROTECTED BY STEEL POINTS. IF THE USE OF STEEL POINTS IS DETERMINED TO BE UNNECESSARY, ITEM 507 STEEL POINTS WILL BE NONPERFORMED. THE STEEL PILE POINTS SHALL BE FURNISHED BY ASSOCIATED PILE AND FITTING CORPORATION, 262 RUTHERFORD BOULEVARD, CLIFTON, NEW JERSEY 07014; INTERNATIONAL CONSTRUCTION EQUIPMENT, INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28015; DOUGHERTY FOUNDATION PRODUCTS, INC., P.O. BOX 688, FRANKLIN LAKES, NEW JERSEY 07417; VERSA STEEL INC., 3601 N. W. YEON AVENUE, P.O. BOX 10559, PORTLAND, OREGON 97210 OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO THE DIRECTOR.

ITEM SPECIAL, TEST PILE PROGRAM:

THIS ITEM SHALL CONSIST OF THREE STATIC LOAD TESTS CONDUCTED AS PER 506. THE STATIC LOAD TESTS SHALL BE CONDUCTED ON AN 18 INCH CAST-IN-PLACE REINFORCED CONCRETE PILE, A STEEL "H" BEARING PILE (HP 14 X 89) AND A STEEL "H" BEARING PILE (HP 14 X 89) WITH A STEEL POINT. THE PILES TO BE TESTED SHALL HAVE BEEN DRIVEN TO REFUSAL ON THE CLAY SHALE BEDROCK. THE PILES TO BE STATICLY LOAD TESTED SHALL EACH EXPERIENCE A 7 DAY WAITING PERIOD PRIOR TO STARTING THE LOAD TEST.

THIS ITEM SHALL ALSO INCLUDE THE DRIVING AND EXTRACTING OF A STEEL "H" BEARING PILE (HP 14 X 89). THE PILE SHALL BE DRIVEN AT A 4 VERTICAL TO 1 HORIZONTAL BATTER TO REFUSAL ON BEDROCK.

PAYMENT WILL BE MADE AT CONTRACT PRICE FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL	LUMP SUM	TEST PILE PROGRAM

WETLAND AND CHANNEL PIER FOOTINGS:

PIER FOOTINGS LOCATED WITHIN THE WETLANDS AND RIVER CHANNEL SHALL BE CONSTRUCTED WITHIN TEMPORARY STEEL SHEET PILE COFFERDAMS. ALL SOIL EXCAVATED FOR CONSTRUCTION OF THE PIER FOOTINGS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN AN APPROVED WASTE AREA. TEMPORARY DEPOSITING OF THE EXCAVATED SOIL AT THE WORK SITE WILL NOT BE ALLOWED. THE PIER FOOTINGS SHALL BE BACKFILLED USING GRANULAR MATERIAL CONFORMING TO ITEM 310, SUBBASE EXCEPT THAT SLAGS AND SLAKER AGGREGATES WILL NOT BE PERMITTED. BACKFILLING OF THE PIER FOOTINGS USING GRANULAR MATERIAL SHALL BE INCLUDED WITH ITEM 503, UNCLASSIFIED EXCAVATION FOR PAYMENT.
ALL ADDITIONAL APPLICABLE REQUIREMENTS OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS ITEM 503 "EXCAVATION FOR STRUCTURES" SHALL APPLY AND SHALL BE CONFORMED WITH.

CONSTRUCTION CLEARANCE:

CONSTRUCTION CLEARANCE OF 8.00' HORIZONTALLY FROM THE CENTER OF TRACKS AND 21.00' VERTICALLY FROM A POINT LEVEL WITH THE TOP OF THE HIGHER RAIL, AND 4 FEET FROM THE CENTER OF TRACKS, SHALL BE MAINTAINED AT ALL TIMES.

RAILROAD AERIAL LINES:

RAILROAD AERIAL LINES WILL BE RELOCATED BY THE RAILROAD. THE CONTRACTOR SHALL USE ALL PRECAUTIONS NECESSARY TO SEE THAT THE LINES ARE NOT DISTURBED DURING THE CONSTRUCTION STAGE AND SHALL COOPERATE WITH THE RAILROAD IN THE RELOCATION OF THESE LINES. THE COST OF THE RELOCATION SHALL BE INCLUDED IN THE RAILROAD FORCE ACCOUNT WORK.

UTILITY LINES

ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER(S). THE CONTRACTOR AND OWNER(S) ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

MAINTENANCE AND PROTECTION OF TRAFFIC

TRAFFIC SHALL BE MAINTAINED ON RIVER ROAD AND JEFFRIES ROAD AS INDICATED ON THE ROADWAY PLANS (GENERAL NOTES).

REINFORCING BAR LAPPED SPLICES:

REINFORCING BARS SHALL BE LAPPED AS FOLLOWS, UNLESS OTHERWISE NOTED IN THESE PLANS.

NO. 4 BAR - 1'-10" MIN.
NO. 5 BAR - 2'-5" MIN.
NO. 6 BAR - 2'-10" MIN.
NO. 8 BAR - 4'-9" MIN.
NO. 10 BAR - 7'-8" MIN.

ITEM 518 POROUS BACKFILL, AS PER PLAN:

POROUS BACKFILL SHALL BE CONSTRUCTED WITH FILTER FABRIC AS PER DETAILS IN THE PLAN.

THE FILTER FABRIC SHALL BE TYPE B AS PER 712.09. DURING ALL PERIODS OF SHIPMENT AND STORAGE THE CLOTH SHALL BE WRAPPED IN A HEAVY DUTY PROTECTIVE COVERING TO PROTECT IT FROM DIRECT SUNLIGHT, MUD, DIRT, DUST, AND OTHER DEBRIS.

ALL JOINTS SHALL BE LAPPED AT A MINIMUM OF TWO (2) FEET. THE AGGREGATE SHALL BE NO. 57 CRUSHED GRAVEL.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 518. POROUS BACKFILL, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

CONSTRUCTION SEQUENCE - ALTERNATE-2
THE SLAB FOR SPAN 22 OF UNIT 3 SHALL BE PLACED BEFORE THE SLAB FOR SPAN 23 OF UNIT 4 SO THAT FINAL ADJUSTMENTS OF THE END DAM ELEVATIONS FOR UNANTICIPATED CAMBER OF THE PRESTRESS I BEAMS CAN BE MADE.

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STRUCTURAL GENERAL NOTES
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

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HIGH RANGE WATER REDUCER SHALL CONFORM TO 705.12, ASTM-C494 TYPE F AND SHALL NOT CONTAIN CALCIUM CHLORIDE.

THE CEMENT CONTENT SHALL BE MAINTAINED AND A MAXIMUM WATER-CEMENT RATIO OF 0.40 SHALL NOT BE EXCEEDED. THE SLUMP OF THE UNPLASTICIZED CONCRETE DELIVERED TO THE JOB SITE SHALL BE 1 1/2", ±1/2 INCH. THE SUPERPLASTICIZING ADMIXTURE SHALL BE ADDED AT THE JOB SITE AND MIXED A MINIMUM OF FIVE (5) MINUTES. AFTER THE SUPERPLASTICIZER HAS BEEN ADDED, THE SLUMP SHALL BE 6 1/2", ±1/2 INCH. THE CONTRACTOR SHALL FURNISH A VOLUMETRIC DISPENSER FOR THE SUPERPLASTICIZER.

CONCRETE MIXTURES CONTAINING A HIGH RANGE WATER REDUCER SHALL MEET THE SAME REQUIREMENTS FOR ENTRAINED AIR CONTENT, MINIMUM STRENGTH, AND MAXIMUM WATER-CEMENT RATIO AS REQUIRED FOR THE RESPECTIVE GRADE OF CONCRETE WITHOUT A HIGH RANGE WATER REDUCER.

SAMPLING AND TESTING FOR ENTRAINED AIR CONTENT AND MINIMUM STRENGTH SHOULD BE TAKEN FROM THE CONCRETE THAT HAS BEEN TREATED WITH A HIGH RANGE WATER REDUCER.

CURING SHALL BE IN ACCORDANCE WITH 511.14 TYPE "A" WATER CURING.

PLACEMENT

PLACEMENT OF CONCRETE SHALL BE COMPLETED UNDER FAVORABLE ATMOSPHERIC CONDITIONS. FAVORABLE ATMOSPHERIC CONDITIONS EXIST WHEN THE SURFACE EVAPORATION RATE AS AFFECTED BY AMBIENT AIR TEMPERATURE, CONCRETE TEMPERATURE, RELATIVE HUMIDITY AND WIND VELOCITY IS 0.1 POUNDS PER SQUARE FOOT PER HOUR OR LESS. FIGURE (1) SHALL BE USED TO DETERMINE GRAPHICALLY THE SURFACE EVAPORATION RATE. FAVORABLE ATMOSPHERIC CONDITIONS MAY REQUIRE PLACEMENT DURING LATE EVENING, NIGHT OR EARLY MORNING HOURS. (SEE FIGURE I THIS SHEET)

IF PLACEMENT OF THE CONCRETE IS TO BE MADE AT NIGHT, THE CONTRACTOR SHALL SUBMIT A PLAN WHICH PROVIDES ADEQUATE LIGHTING FOR THE WORK AREA AT LEAST 15 CALENDAR DAYS IN ADVANCE AND RECEIVE WRITTEN APPROVAL FROM THE ENGINEER BEFORE PLACING THE CONCRETE. THE LIGHTS SHALL BE SO DIRECTED THAT THEY DO NOT AFFECT OR DISTRACT APPROACHING TRAFFIC.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER CUBIC YARD FOR ITEM 511 CLASS S CONCRETE, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE.

PAINTING OF STRUCTURAL STEEL:

STRUCTURAL STEEL SHALL NOT BE PAINTED EXCEPT FOR THE PARAPET SLIDING PLATES. THE PARAPET SLIDING PLATES SHALL BE PAINTED IN ACCORDANCE WITH ITEM 514 FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM B. TOP COATS SHALL CONFORM WITH ITEM 708.00, CORROSION RESISTANT GRAY FINISH PAINT. FIELD PAINTING OF THE PARAPET SLIDING PLATES SHALL BE INCLUDED WITH ITEM 513, STRUCTURAL STEEL FOR PAYMENT.

WASTE AREAS

WASTE AREA SITE LOCATIONS OUTSIDE OF THE PROJECT RIGHT-OF-WAY SHALL BE SELECTED BY THE CONTRACTOR. PRIOR TO THE USE OF THE WASTE AREAS, THE CONTRACTOR SHALL INFORM THE DIRECTOR OF THE OHIO DEPARTMENT OF TRANSPORTATION AND THE UNITED STATES ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT, IN WRITING OF THE LOCATION OF THE PROPOSED WASTE AREAS AND PROVIDE A WRITTEN DESCRIPTION OF THE WASTE AREAS. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL OF THE SELECTED WASTE AREAS FROM BOTH AGENCIES PRIOR TO THE USE OF THE AREAS.

DISPOSAL OF WASTE MATERIALS IN ANY WETLAND AREA AS DEFINED IN THE UNITED STATES DEPARTMENT OF INTERIOR, FISH AND WILDLIFE SERVICES "CIRCULAR 39, WETLANDS OF THE UNITED STATES" WILL NOT BE PERMITTED.

ALL ADDITIONAL REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SECTION 105.151 "BORROW AND WASTE AREAS" SHALL APPLY AND SHALL BE CONFORMED WITH.

CIRCULATION CANAL

PRIOR TO INSTALLING THE SILT FENCE ACROSS THE HURON RIVER WETLANDS AND CONSTRUCTING THE TEMPORARY WETLANDS ACCESS ROAD, THE CONTRACTOR SHALL EXCAVATE A CANAL SOUTH OF THE BRIDGE CROSSING THROUGH THE LOW WEST BANK AREA BETWEEN THE RIVER CHANNEL AND ADJACENT WETLAND AREA. PURPOSE OF THE CANAL IS TO FACILITATE CIRCULATION OF WATER AND MOVEMENT OF AQUATIC LIFE BETWEEN THE WETLANDS AND RIVER CHANNEL UPSTREAM OF THE TEMPORARY ACCESS ROAD. SEE THE ROADWAY PLANS FOR CONSTRUCTION DETAILS AND PAYMENT QUANTITIES FOR THE CIRCULATION CANAL. ALL SOIL EXCAVATED FOR CONSTRUCTION OF THE CIRCULATION CANAL SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN AN APPROVED WASTE AREA. TEMPORARY DEPOSITING OF THE EXCAVATED SOIL AT THE WORK SITE WILL NOT BE PERMITTED. CANAL EXCAVATION IN AREAS BELOW THE WATER LEVEL SHALL BE ENCLOSED IN A SILT FENCE TO CONFINE SILTATION.

SILT FENCE

PRIOR TO EXCAVATING THE CIRCULATION CANAL IN THE WEST BANK AREA BETWEEN THE RIVER CHANNEL AND WETLANDS, THE CONTRACTOR SHALL INSTALL A SILT FENCE AROUND THE AREAS TO BE EXCAVATED THAT ARE BELOW WATER LEVEL. THE SILT FENCE SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER AND SHALL REMAIN IN PLACE THROUGHOUT THE CANAL EXCAVATION PERIOD AND FOR A MINIMUM OF TWO DAYS AFTER COMPLETION OF THE CANAL EXCAVATION. THE CONTRACTOR SHALL REMOVE THE SILT FENCE AROUND THE CANAL EXCAVATION AREA AFTER RECEIVING AUTHORIZATION FROM THE ENGINEER.

UPON COMPLETION OF THE CIRCULATION CANAL, THE CONTRACTOR SHALL INSTALL SILT FENCES ACROSS THE HURON RIVER WETLANDS (STATION 1233 + 50± TO STATION 1254 +50±) PRIOR TO COMMENCING ANY ADDITIONAL WORK IN THE WETLANDS. TWO CONTINUOUS LINES OF SILT FENCE SHALL BE INSTALLED ACROSS THE WETLANDS TO ENCLOSE THE BRIDGE CROSSING AREA. ONE LINE SHALL BE LOCATED UPSTREAM AND THE SECOND LINE SHALL BE LOCATED DOWNSTREAM OF THE PROPOSED HURON RIVER BRIDGES. THE SILT FENCES SHALL BE LOCATED APPROXIMATELY 25 FEET OUTSIDE THE EXTERIOR FASCIAS OF THE DUAL BRIDGES AND SHALL ROUGHLY PARALLEL THE EXTERIOR BRIDGE FASCIAS.

SILT FENCE FABRIC SHALL MEET THE REQUIREMENTS OF 712.09, TYPE C. THE SILT FENCE FABRIC SHALL BE SUPPORTED, SECURED AND ANCHORED AS NECESSARY TO PREVENT REMOVAL BY STREAM FLOW AND TO CONFINE SILTATION TO WITHIN THE ENCLOSED AREA.

THE CONTRACTOR SHALL INSTALL THE SILT FENCE ACROSS HURON RIVER WETLANDS, MAINTAIN THE FENCE DURING THE CONSTRUCTION PERIOD, AND SUBSEQUENTLY REMOVE THE SILT FENCE AFTER ALL OTHER WORK IN THE WETLANDS HAS BEEN COMPLETED.

PAYMENT FOR THE INSTALLATION, MAINTENANCE, AND SUBSEQUENT REMOVAL OF THE SILT FENCE SHALL BE FOR THE ACTUAL LINEAL FEET OF SILT FENCE INSTALLED AND SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR AND EQUIPMENT REQUIRED FOR THIS ITEM OF WORK.

PAYMENT WILL BE MADE AT CONTRACT PRICES FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL	LIN. FEET	SILT FENCE

AN ESTIMATED QUANTITY OF 4600 LIN. FEET OF ITEM SPECIAL, SILT FENCE IS INCLUDED IN THE ROADWAY PLAN GENERAL SUMMARY FOR PAYMENT OF THE INSTALLATION OF SILT FENCES ACROSS THE HURON RIVER WETLANDS AND AROUND THE CIRCULATION CANAL EXCAVATION AREA.

BRIDGE CONSTRUCTION ACCESS ROAD ACROSS WETLANDS

IT IS INTENDED TO CONSTRUCT THE HURON RIVER BRIDGES CAUSING MINIMAL DISTURBANCE AND MINIMAL LONG TERM DAMAGE TO THE WETLANDS. FOR ACCESS IN THE WETLANDS TO CONSTRUCT THE BRIDGES A TEMPORARY HAUL ROAD SHALL BE CONSTRUCTED FROM STATION 1233 + 50± TO STATION 1254 + 50± IN THE CENTER OF THE MEDIAN AREA BETWEEN THE DUAL BRIDGES. ACCESS TO EACH OF BRIDGE PIERS SHALL BE FROM TEMPORARY ROAD PROJECTIONS CONSTRUCTED FROM THE MAIN HAUL ROAD.

WIDTH OF THE TEMPORARY ROAD SHALL BE AS REQUIRED BY THE CONTRACTOR'S CONSTRUCTION AND ERECTION EQUIPMENT AND FOR EFFICIENT PROSECUTION OF THE BRIDGE CONSTRUCTION WORK. MINIMUM USABLE WIDTH SHALL BE 20 FEET. THE CONTRACTOR SHALL CONSTRUCT THE TEMPORARY ROAD TO A LEVEL ABOVE THE MARSH SOIL LEVEL THAT WILL PERMIT USE OF THE ROAD DURING A TWO YEAR FREQUENCY FLOOD. THE TEMPORARY ROAD SHALL HAVE RELATIVELY FLAT (4:1 OR FLATTER) SIDE SLOPES TO MINIMIZE HEAVING OF THE MARSH SOIL ADJACENT TO THE ROAD.

THE TEMPORARY ROAD SHALL BE CONSTRUCTED BY INSTALLING A SOIL STABILIZATION ENGINEERING FABRIC ON THE MARSH SOIL AND PLACING AND COMPACTING CRUSHED AGGREGATE FILL ON THE FABRIC TO THE REQUIRED GRADE LEVEL. PRIOR TO PLACING THE FABRIC, THE MARSH SURFACE SHALL BE CLEARED AND PREPARED IN ACCORDANCE WITH THE FABRIC MANUFACTURER'S RECOMMENDATIONS.

SOIL STABILIZATION ENGINEERING FABRIC

THE ENGINEERING FABRIC SHALL PROVIDE A PERMEABLE LAYER OR MEDIA, PLANAR FLOW, AND TENSILE REINFORCEMENT, WHILE RETAINING THE SOIL MATRIX.

CALC. DATE		OHIO
CHKD. DATE		F.H.W.A. REGION 5

205A
326

ERIE COUNTY
ERI-2-18.38

MATERIAL REQUIREMENTS:

THE ENGINEERING FABRIC SHALL BE A NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER, FORMED INTO A STABLE NETWORK BY NEEDLE PUNCHING. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS, HYDROCARBONS, MILDEW AND ROT RESISTANT, RESISTANT TO ULTRAVIOLET LIGHT EXPOSURE, INSECT AND RODENT RESISTANT, AND CONFORM TO THE PROPERTIES IN THE FOLLOWING TABLE. THE AVERAGE ROLL MINIMUM VALUE (WEAKEST PRINCIPLE DIRECTION) FOR STRENGTH PROPERTIES OF ANY INDIVIDUAL ROLL TESTED FROM THE MANUFACTURING LOT OR LOTS OF A PARTICULAR SHIPMENT SHALL BE IN EXCESS OF THE AVERAGE ROLL MINIMUM VALUE (WEAKEST PRINCIPLE DIRECTION) STIPULATED HEREIN.

TEST REQUIREMENTS:

PHYSICAL PROPERTIES	AVERAGE ROLL MINIMUM VALUE (WEAKEST PRINCIPLE DIRECTION)*
GRAB TENSILE STRENGTH* ASTM D1682 (LBS.)	270
ELONGATION AT FAILURE* ASTM D1682 (%)	60
MULLEN BURST STRENGTH ASTM D3786 (PSI)	430
PLANAR WATER FLOW (QTS./HR./2" FABRIC)	.3
COEFFICIENT OF NORMAL PERMEABILITY - K (CM/SEC.) (5 IN. CONSTANT HEAD)	.1
VERTICAL WATER FLOW (GAL/MIN/FT^2) (5 IN. CONSTANT HEAD)	100
EQUIVALENT OPENING SIZE (U.S. STANDARD SIEVE NO.) CW-02215 U.S. STD. SIEVE NUMBER LARGER THAN	50
TRAPEZOID TEAR STRENGTH* ASTM 1117 (LBS.)	80
PUNCTURE STRENGTH ASTM D751 (MODIFIED) (LBS.)	125

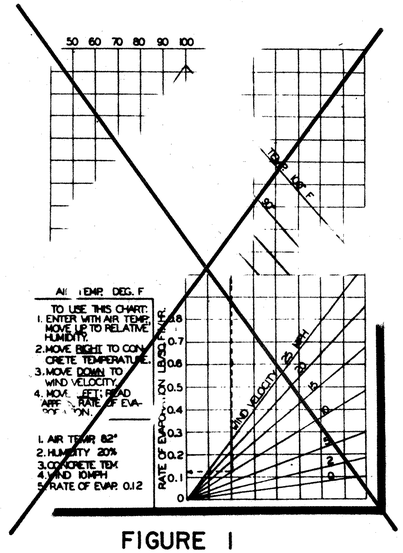

FIGURE I

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STRUCTURAL GENERAL NOTES
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N.&W.R.R. & RIVER ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

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PACKAGING AND IDENTIFICATION REQUIREMENTS:

THE ENGINEERING FABRIC SHALL BE PROVIDED IN ROLLS WRAPPED WITH PROTECTIVE COVERING TO PROTECT THE FABRIC FROM MUD, DIRT, DUST, AND DEBRIS. THE FABRIC SHALL BE FREE OF DEFECTS OR FLAWS WHICH SIGNIFICANTLY AFFECT ITS PHYSICAL PROPERTIES. EACH ROLL OF FABRIC IN THE SHIPMENT SHALL BE LABELED WITH A NUMBER OR SYMBOL TO IDENTIFY THAT PRODUCTION RUN.

SAMPLING AND COMPLIANCE REQUIREMENTS:

THE MANUFACTURER SHALL SUBMIT CERTIFIED TEST DATA TO COVER EACH SHIPMENT OF MATERIAL.

INSTALLATION DETAILS:

THE ENGINEERING FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SEPARATE ROLLS SHALL BE JOINED BY OVERLAPPING. UNSEWN OVERLAPS SHALL BE 48 INCHES WIDE MINIMUM. SEWN OVERLAPS SHALL BE 9 INCHES MINIMUM AND SHALL BE SEWN TWICE. FABRIC WITH UNSEWN OVERLAPS SHOULD NOT BE UNROLLED MORE THAN 25 FEET AHEAD OF AGGREGATE PLACEMENT IN ORDER TO AVOID OVERLAP SEPARATION.

AGGREGATE

AGGREGATE FOR THE TEMPORARY ROAD SHALL MEET THE REQUIREMENTS OF ITEM 304 AGGREGATE BASE AND SHALL BE CRUSHED CARBONATE STONE OR CRUSHED GRAVEL. NO SLAGS WILL BE PERMITTED.

PLACING AND COMPACTING AGGREGATE FILL:

THE AGGREGATE SHOULD BE BACK DUMPED AND SPREAD IN A UNIFORM LIFT MAINTAINING THE DESIGN AGGREGATE THICKNESS AT ALL TIMES. CONSTRUCTION VEHICLES WILL ONLY BE ALLOWED TO TRAFFIC DIRECTLY ON THE FABRIC IF NO RUTS DEVELOP.

OVERSTRESSING THE SOIL SHOULD BE AVOIDED BY UTILIZING EQUIPMENT IN SPREADING AND DUMPING THAT EXERTS ONLY MODERATE PRESSURES ON THE SOIL. SEVERE RUTTING AT THE TIME OF PLACEMENT IS AN INDICATION OF OVERSTRESSING THE SOIL. SUCH SOIL OVERSTRESSING MUST BE AVOIDED. INCREASING AGGREGATE DEPTHS AND REDUCING LOADS ARE TWO METHODS OF REDUCING THE PRESSURES ON THE SOIL.

ANY RUTS WHICH DEVELOP DURING SPREADING OR COMPACTING SHOULD BE FILLED WITH ADDITIONAL AGGREGATE RATHER THAN BLADED FROM SURROUNDING AREAS. PLACING ADDITIONAL AGGREGATE INTO THE RUTTED AREAS INSURES THAT THE DESIGN AGGREGATE THICKNESS IS MAINTAINED.

THE AGGREGATE SHOULD BE COMPACTED THOROUGHLY WITH VIBRATORY ROLLERS PRIOR TO USE BY THE HAUL EQUIPMENT. VIBRATORY FREQUENCY AND AMPLITUDE ADJUSTMENTS ARE OCCASIONALLY REQUIRED. INITIAL ROLLING MIGHT BE A SEAL ROLL WITH FINAL ROLLING AT INCREASED AMPLITUDES AND FREQUENCIES.

MAINTENANCE

THE CONTRACTOR SHALL MAINTAIN THE TEMPORARY ACCESS ROAD DURING THE CONSTRUCTION PERIOD IN A SUITABLE CONDITION FOR EFFICIENT PROSECUTION OF THE BRIDGE CONSTRUCTION WORK.

AGGREGATE REMOVAL

WHEN NO LONGER NEEDED FOR ACCESS, THE TEMPORARY ROAD AGGREGATE SHALL BE REMOVED TO A LEVEL OF APPROXIMATELY 6 INCHES BELOW THE LEVEL OF THE ORIGINAL MARSH SOIL SURFACE. IF PERMITTED BY THE ENGINEER THE RETRIEVED AGGREGATE MAY BE INCORPORATED AS EMBANKMENT IN OTHER PROJECT AREAS. OTHERWISE THE RETRIEVED AGGREGATE SHALL BE DISPOSED OF.

PAYMENT:

ACCESS ROAD CONSTRUCTION, MAINTENANCE AND AGGREGATE REMOVAL WHEN THE ACCESS ROAD IS NO LONGER NEEDED ARE CONSIDERED INCIDENTAL TO THE BRIDGE CONSTRUCTION. NO SEPARATE PAYMENT WILL BE MADE FOR ACCESS ROAD. THE ACCESS ROAD MATERIALS, CONSTRUCTION, MAINTENANCE AND SUBSEQUENT AGGREGATE REMOVAL SHALL BE INCLUDED WITH THE OTHER ITEMS OF BRIDGE CONSTRUCTION FOR PAYMENT.

ALTERNATE CONSTRUCTION ACCESS METHODS

IF THE CONTRACTOR ELECTS TO CONSTRUCT THE HURON RIVER BRIDGES USING AN ALTERNATE WETLAND ACCESS METHOD RATHER THAN THE TEMPORARY ACCESS ROAD, A COMPLETE DESCRIPTION OF THE ALTERNATE ACCESS METHOD SHALL BE SUBMITTED IN WRITING TO THE DIRECTOR FOR APPROVAL. ALTERNATE METHODS WILL REQUIRE COORDINATION WITH THE APPROPRIATE STATE AND FEDERAL AGENCIES. WRITTEN APPROVAL OF THE ALTERNATE ACCESS METHOD MUST BE OBTAINED PRIOR TO IMPLEMENTING THE ALTERNATE. MINIMIZATION OF WETLAND DISTURBANCE AND LONG TERM WETLAND DAMAGE WILL BE CONSIDERATIONS FOR APPROVAL OF CONTRACTOR PROPOSED ALTERNATE WETLAND ACCESS METHOD.

BRIDGE CONSTRUCTION ACCESS ACROSS THE HURON RIVER CHANNEL

IT IS ALSO INTENDED TO CONSTRUCT THE HURON RIVER BRIDGES CAUSING MINIMAL DISTURBANCE AND MINIMAL LONG TERM DAMAGE TO THE MAIN RIVER CHANNEL, (STATION 1255 + 20± TO STATION 1257 + 60±). BARGES SHALL BE USED FOR CONSTRUCTION ACCESS WITHIN THE MAIN RIVER CHANNEL, AND BARGE MOUNTED EQUIPMENT SHALL BE USED FOR CONSTRUCTING THE PORTION OF BRIDGES ACROSS THE CHANNEL. CONSTRUCTION OF A TEMPORARY ACCESS ROAD OR FORD WITHIN OR ACROSS THE MAIN RIVER CHANNEL WILL NOT BE PERMITTED.

PAYMENT:

ACCESS WITHIN AND ACROSS THE RIVER CHANNEL IS CONSIDERED INCIDENTAL TO THE BRIDGE CONSTRUCTION. NO SEPARATE PAYMENT WILL BE MADE FOR CHANNEL ACCESS. CHANNEL ACCESS SHALL BE INCLUDED WITH THE OTHER ITEMS OF BRIDGE CONSTRUCTION FOR PAYMENT.

ALTERNATE CONSTRUCTION ACCESS METHODS

IF THE CONTRACTOR ELECTS TO CONSTRUCT THE HURON RIVER BRIDGES USING AN ALTERNATE CHANNEL ACCESS METHOD RATHER THAN BARGES, A COMPLETE DESCRIPTION OF THE ALTERNATE ACCESS METHOD SHALL BE SUBMITTED IN WRITING TO THE DIRECTOR FOR APPROVAL. ALTERNATE METHODS WILL REQUIRE COORDINATION WITH THE APPROPRIATE STATE AND FEDERAL AGENCIES. WRITTEN APPROVAL OF THE ALTERNATE ACCESS METHOD MUST BE OBTAINED PRIOR TO IMPLEMENTING THE ALTERNATE. MINIMIZATION OF CHANNEL DISTURBANCE AND LONG TERM CHANNEL DAMAGE WILL BE CONSIDERATIONS FOR APPROVAL OF CONTRACTOR PROPOSED ALTERNATE CHANNEL ACCESS METHOD.

ITEM 516, STRUCTURAL EXPANSION JOINTS INCLUDING ELASTOMERIC COMPRESSION SEALS:

THIS ITEM CONSISTS OF FURNISHING AND INSTALLING ALL NECESSARY MATERIALS TO COMPLETE THE EXPANSION JOINTS AS DETAILED ON THE PLANS. THE PLANS ARE DETAILED FOR WATSON-BOWMAN & ACME D-600 & D-900 MODULAR JOINT SYSTEMS MANUFACTURED BY THE WATSON-BOWMAN & ACME CORPORATION.
AS AN ALTERNATE A STEELFLEX SYSTEM, SERIES SSS, MANUFACTURED BY THE D.S. BROWN COMPANY OR OTHER APPROVED ALTERNATES MAY BE USED.

ALL STEEL FOR THE EXPANSION JOINTS EXCEPT FOR THE EXTRUSIONS SHALL BE A36 GALVANIZED AS PER 711.02. THE EXTRUSIONS SHALL BE A36 PAINTED AS PER EXJ-2-81.

IN ORDER FOR OTHER ALTERNATE EXPANSION JOINTS TO BE CONSIDERED FOR APPROVAL, THEY MUST BE SEALED, MODULAR JOINTS, CAPABLE OF ACCOMMODATING THE ANTICIPATED MOVEMENTS AT THE JOINTS. IN ADDITION, THE JOINTS MUST HAVE SEALS WITH A POSITIVE LOCKING MECHANISM TO RESIST SEPARATION FROM THE SUPPORTING ELEMENTS (EXTRUSIONS).

THE JOINT SYSTEMS SHALL NOT EXERT A FORCE ON THE ABUTMENT BACKWALLS OR ON THE DECK SLABS IN EXCESS OF 300 POUNDS PER LINEAL OF JOINT FOR THE FULL RANGE OF EXPANSION AND CONTRACTION TO BE EXPECTED AT THE JOINTS.

IF THE CONTRACTOR PROPOSES TO USE THE ABOVE LISTED ALTERNATE JOINTS OR OTHER ALTERNATE JOINTS, THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL COMPLETE JOINT DETAILS ALONG WITH DETAILS OF ANY CHANGES IN THE REMAINDER OF THE STRUCTURE REQUIRED TO ACCOMMODATE THE ALTERNATE JOINTS. THESE JOINT DETAILS AND PLAN REVISIONS SHALL BE MADE AT THE EXPENSE OF THE CONTRACTOR.

ITEM 516, LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A & TYPE B) FOR BRIDGE ALTERNATE 2

THIS ITEM CONSISTS OF FURNISHING ALL NECESSARY MATERIALS, INSTALLATION AND LABOR FOR THE COMPLETE BEARINGS AS DETAILED ON THE PLANS. THE BEARINGS ARE LAMINATED ELASTOMERIC BEARINGS WITH STEEL BEARING AND LOAD PLATES AND COMBINE A TEFLON/STAINLESS STEEL SLIDING SURFACE WITH A CONVENTIONAL 50 DUROMETER HARDNESS LAMINATED ELASTOMERIC BEARING PAD. TYPE A INCORPORATES A SHEAR RESTRICTER PIN TO AVOID OVER-STRESSING THE NEOPRENE IN SHEAR.

ALTERNATE BEARINGS APPROVED BY THE DIRECTOR MAY BE USED IN LIEU OF THE BEARINGS DETAILED IN THE PLANS. FOR AN ALTERNATE BEARING TO BE CONSIDERED FOR APPROVAL, IT MUST BE CAPABLE OF SUPPORTING A MAXIMUM REACTION OF 165,000 POUNDS AND HAVE SIMILAR SLIDING, VERTICAL DEFLECTION, AND VERTICAL ROTATION CAPABILITIES AS THE DETAILED BEARINGS. THE ALTERNATE BEARINGS SHALL BE CAPABLE OF ACCOMMODATING THE FULL DESIGN RANGE OF SUPERSTRUCTURE EXPANSION AND CONTRACTION WITHOUT IMPOSING A HORIZONTAL FORCE ON THE SUBSTRUCTURE ELEMENTS EXCEEDING 6.0 PERCENT OF THE SUPERSTRUCTURE DEAD LOAD VERTICAL REACTION FORCE ON THE BEARING.

CALC.		OHIO
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ERIE COUNTY
ERI-2-18.38

IF THE CONTRACTOR PROPOSES TO USE AN ALTERNATE BEARING, THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL COMPLETE BEARING DETAILS ALONG WITH DETAILS OF ANY CHANGES IN THE REMAINDER OF THE STRUCTURES REQUIRED TO ACCOMMODATE THE ALTERNATE DESIGN. THESE DETAILS AND PLAN REVISIONS SHALL BE MADE AT THE EXPENSE OF THE CONTRACTOR.

THE QUANTITY SHALL BE THE ACTUAL NUMBER OF SLIDING BEARINGS. PAYMENT FOR FURNISHING AND INSTALLING SLIDING BEARINGS WILL BE MADE AT THE CONTRACT PRICE AS PER ITEM 516, LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES, (TYPE A) OR TYPE B.

GENERAL

BEARING AND MASONRY PLATES SHALL CONFORM TO DIVISION I, SECTIONS 10, 14 AND 15 AND DIVISIONS II, SECTIONS 25 AND 27 OF THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", DATED 1983 AND AS SPECIFIED ON THESE PLANS.

TFE SLIDING SURFACE

A. UNFILL TFE SHEET SHALL BE A MINIMUM OF 3/32" THICK AND A MAXIMUM OF 1/8" THICK.

B. 100 PERCENT VIRGIN UNFILLED POLYTETRAFLUOROETHYLENE FABRIC SHALL BE A MINIMUM OF 1/32" THICK AND A MAXIMUM OF 1/8" THICK AFTER COMPRESSION.

C. THE TFE MATERIAL SHALL BE FACTORY-BONDED OR MECHANICALLY CONNECTED TO THE BACKUP MATERIAL AS SHOWN ON THE PLANS.

TESTING AND ACCEPTANCE OF BEARINGS

SLIDING FRICTION TEST

THE TEST METHOD AND EQUIPMENT SHALL BE APPROVED BY THE DIRECTOR AND INCLUDE THE FOLLOWING:

A. THE TEST MUST BE ARRANGED SO THAT THE COEFFICIENT OF FRICTION OF THE FIRST MOVEMENT OF THE MANUFACTURED BEARING CAN BE DETERMINED.

B. THE BEARING SURFACE SHALL BE CLEANED PRIOR TO TESTING, UPON INSTRUCTIONS OF THE BEARING MANUFACTURER.

C. THE TEST SHALL BE CONDUCTED AT MAXIMUM WORKING STRESS FOR THE TFE SURFACE WITH THE TEST LOAD APPLIED CONTINUOUSLY FOR 12 HOURS PRIOR TO MEASURING FRICTION.

D. THE FIRST MOVEMENT STATIC AND DYNAMIC COEFFICIENT OF THE TEST BEARING SHALL BE DETERMINED AT A SLIDING SPEED OF LESS THAN ONE (1) INCH PER MINUTE AND SHALL NOT EXCEED THE COEFFICIENT OF FRICTION FOR DESIGN.

E. THE BEARING SPECIMEN SHALL THEN BE SUBJECTED TO 100 MOVEMENTS OF AT LEAST ONE (1) INCH OF A RELATIVE MOVEMENT AT A SPEED LESS THAN ONE (1) FOOT PER MINUTE. FOLLOWING THIS TEST, THE STATIC AND KINETIC COEFFICIENT OF FRICTION SHALL BE DETERMINED AGAIN AND SHALL NOT EXCEED THE VALUES MEASURED IN "D" ABOVE. THE BEARING OR SPECIMEN SHALL SHOW NO SIGN OF BOND FAILURE OR OTHER DEFECTS.

TESTS SHALL BE MADE TO SHOW THE STRENGTH OF THE BOND OR MECHANICAL CONNECTION OF THE TFE MATERIAL TO A MATERIAL SIMILAR TO THE TOP SURFACE OF THE CHAMFERED PLATE. THE TEST METHOD AND EQUIPMENT SHALL BE APPROVED BY THE DIRECTOR AND INCLUDE THE FOLLOWING REQUIREMENTS:

A. THE TEST SHALL BE MADE USING THE DESIGN LOADS FOR ONE BEARING CATEGORY.

B. TFE MATERIAL-SUBSTRATE ATTACHMENT SHALL BE CAPABLE OF WITHSTANDING A SHEAR FORCE EQUAL TO 10 PERCENT OF THE PERPENDICULAR OR NORMAL APPLICATION LOADING WITHOUT DELAMINATION IN ADDITION TO THE SHEAR FORCE DEVELOPED AS A RESULT OF THE NATURAL BEARING SHEAR FORCE.

C. APPROPRIATE PEEL TESTS MAY BE PROPOSED FOR THE BOND TEST.

BEARINGS REPRESENTED BY THE TEST SPECIMENS PASSING THE ABOVE REQUIREMENTS WILL BE APPROVED FOR USE IN THE STRUCTURE SUBJECT TO ON-SITE INSPECTION FOR VISIBLE DEFECTS.

PAYMENT FOR ALL WORK LISTED UNDER TESTING AND ACCEPTANCE OF BEARINGS WILL BE MADE AT THE LUMP SUM PRICE FOR ITEM SPECIAL, TESTING OF LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES, TYPE A AND B.

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STRUCTURAL GENERAL NOTES
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N.&W.R.R. & RIVER ROAD

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	D.R.J.	L.E.D.	L.E.D.	11/4/85	2-21-86

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

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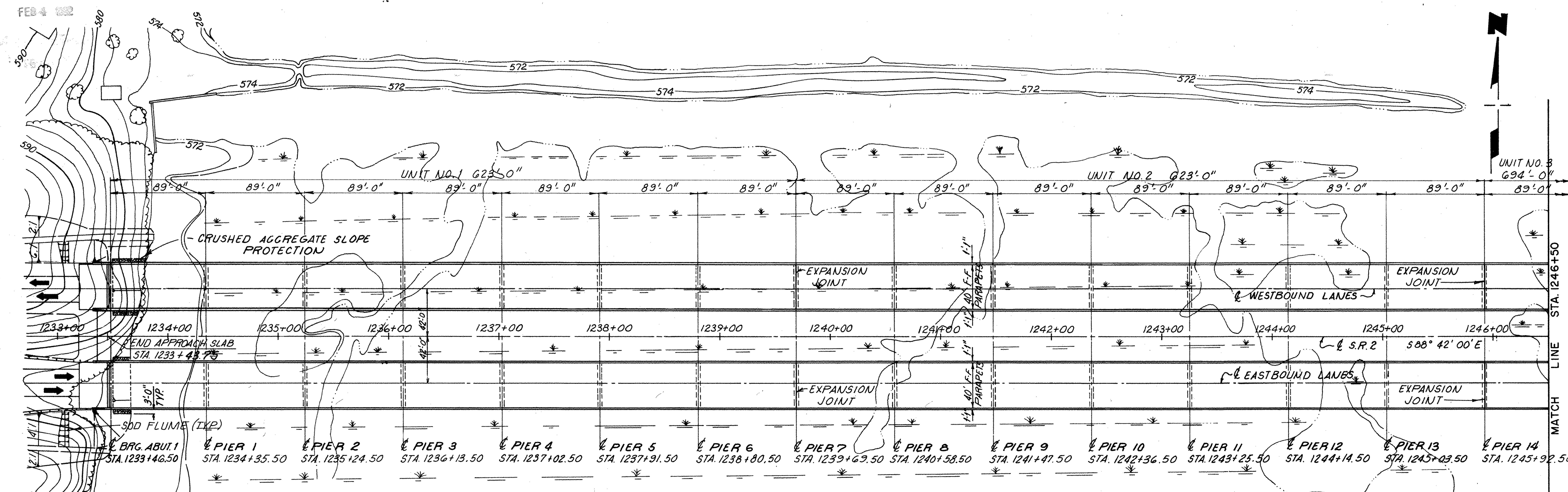
ERIE COUNTY
ERI-2-18.38



FOUNDATION DATA:

ALL ABUTMENT PILES SHALL BE HP 12 X 53 STEEL H BEARING PILES WITH MAXIMUM DESIGN LOAD OF 55 TONS PER PILE.

ESTIMATED AVERAGE PAY LENGTH: ABUTMENT 1 = 47
ABUTMENT 2 = 101

PIERS 1-5 PILES SHALL BE 16" Ø CAST IN PLACE REINFORCED CONCRETE PILES.

PIERS 6-10 PILES SHALL BE 18" Ø CAST IN PLACE REINFORCED CONCRETE PILES.

PIERS 11-26 PILES SHALL BE 14 x 89 STEEL H BEARING PILES WITH MAXIMUM DESIGN LOAD OF 150 TONS PER PILE.

ESTIMATED AVERAGE PAY LENGTH SHALL BE AS FOLLOWS:

PIER 1 = 52 FT.	PIER 8 = 64 FT.	PIER 14 = 46 FT.	PIER 21 = 49 FT.
PIER 2 = 54 FT.	PIER 9 = 65 FT.	PIER 15 = 46 FT.	PIER 22 = 52 FT.
PIER 3 = 56 FT.	PIER 10 = 67 FT.	PIER 16 = 46 FT.	PIER 23 = 54 FT.
PIER 4 = 58 FT.	PIER 11 = 46 FT.	PIER 17 = 46 FT.	PIER 24 = 39 FT.
PIER 5 = 59 FT.	PIER 12 = 46 FT.	PIER 18 = 47 FT.	PIER 25 = 39 FT.
PIER 6 = 61 FT.	PIER 13 = 46 FT.	PIER 19 = 47 FT.	PIER 26 = 76 FT.
PIER 7 = 62 FT.		PIER 20 = 48 FT.	

PLAN

HYDRAULIC DATA:

DRAINAGE AREA = 387 SQ. MI.
DISCHARGE Q50 = 26,000 C.F.S.
Q100 = 32,400 C.F.S.
VELOCITY V50 = 3.02 FT/SEC.
V100 = 3.20 FT/SEC.
HIGH WATER 578.2 CALC. 50 YR.
579.2 CALC. 100 YR.
NO RECORD FOR HIGH WATER ELEV.
LAKE ERIE HIGH WATER ELEV. = 577.5

NOTE:
EARTHWORK LIMITS SHOWN ARE APPROXIMATE, ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.
CONSTRUCTION ACCESS ROAD NOT SHOWN.

PROPOSED STRUCTURE ALTERNATE 2

TYPE: CONTINUOUS PRESTRESSED I-BEAMS UNITS 1, 2 & 3. CONTINUOUS COMPOSITE WELDED STEEL PLATE GIRDERS UNIT 4. REINFORCED CONCRETE DECK. COMBINATION SUBSTRUCTURE, CAPPED PILE PIERS AND REINFORCED CONCRETE PIERS AND ABUTMENTS

SKEW: 0° 00' UNITS 1, 2 & 3 AND 16° 29' 53" LEFT FORWARD UNIT 4

SPANS: (UNITS 1 AND 2) 7 SPANS @ 89'-0"
(UNIT 3) 7 SPANS @ 89'-0", 71'-0"
(UNIT 4) 120'-0", 150'-0", 150'-0" 120'-0", 108'-0"

ROADWAY: 40'-0" F/F PARAPETS

LOADING: HS-20-44 CASE II AND THE ALTERNATE MILITARY LOADING

WEARING SURFACE: MONOLITHIC CONCRETE (TOP LAYER OF REINFORCING EPOXY COATED)

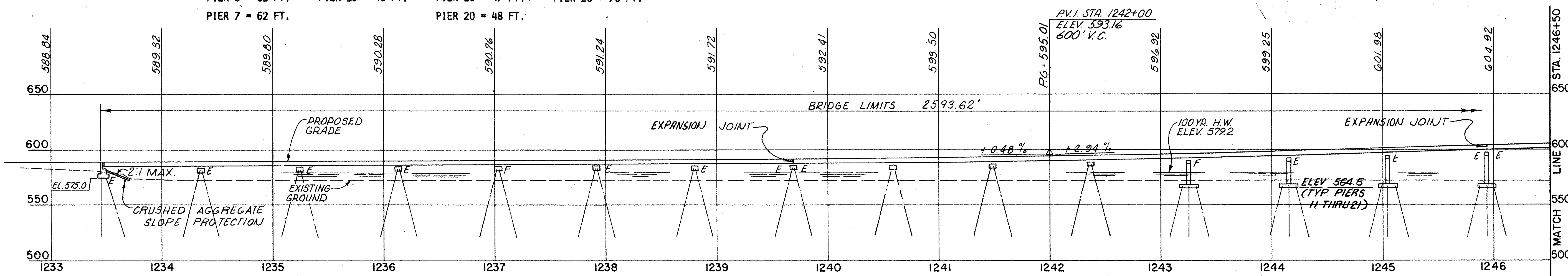
APPROACH SLABS: AS-1-81 (25' LONG)

ALIGNMENT: TANGENT

SUPERELEVATION: NONE

SLOPE PROTECTION: CRUSHED AGGREGATE

TRAFFIC: ADT (2000) 8420
ADTT (2000) 1970



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ALTERNATE-2 | 1/43

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SITE PLAN

BRIDGE No ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N.&W. R.R. & RIVER ROAD

ERIE COUNTY — STA. 1233+43.75 TO
ERI-2-18.38 — STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

RECEIVED
FEB 4 1982

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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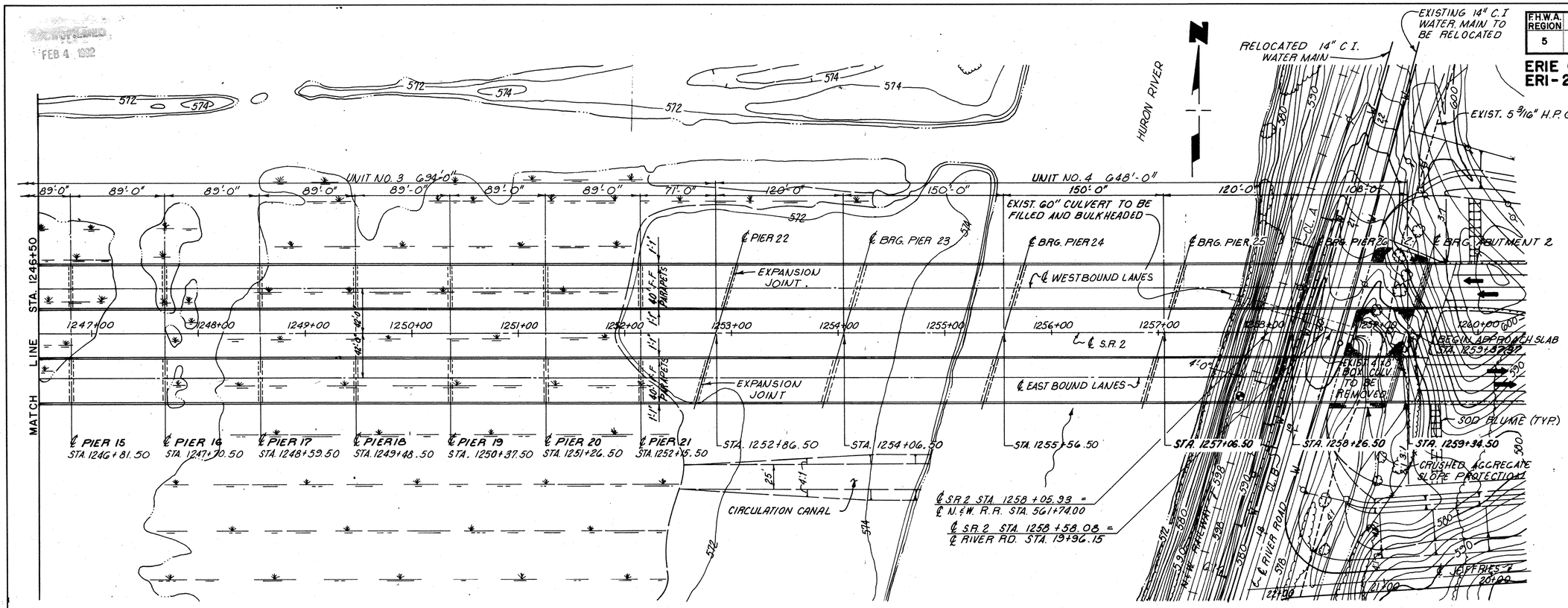
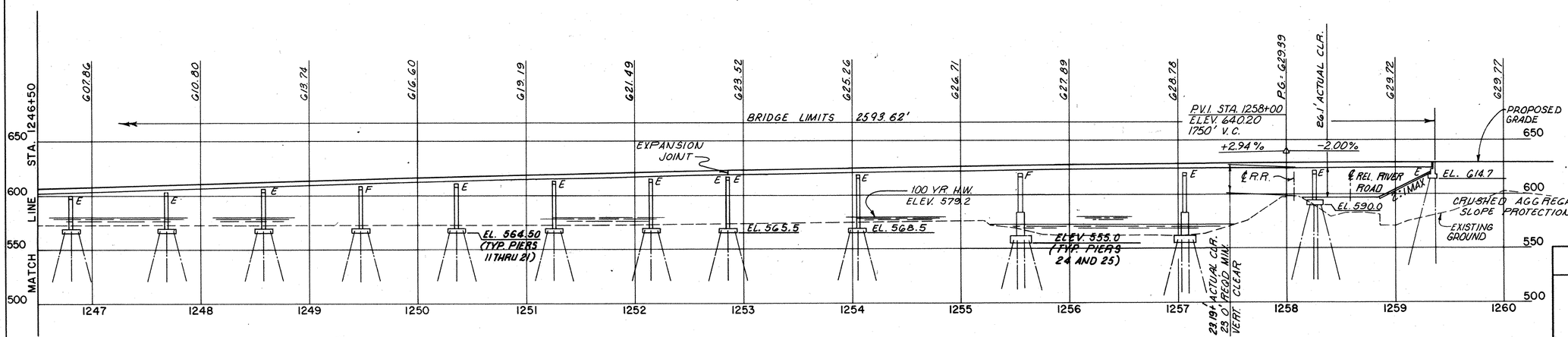
ERIE COUNTY
ERI-2-18.38



PLAN

HORIZ. CLEAR A - 18.22' CLEAR
18.00' REQUIRED
HORIZ. CLEAR B - 16.78' CLEAR
POINT OF MINIMUM VERTICAL CLEARANCE



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ALTERNATE 2

2/43

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SITE PLAN

BRIDGE No. ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N.&W. R.R. & RIVER ROAD

ERIE COUNTY — STA. 1233+43.75 TO
ERI-2-18.38 — STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	L.E.D.	L.E.D.	11/4/85	

FEB 4 1982

FHWA REGION	STATE	PROJECT
5	OHIO	

215/326

ERIE COUNTY
ERI-2-18.38

ESTIMATED QUANTITIES SUMMARY

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL	
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND
503	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	COFFERDAMS, CRIBS AND SHEETING			LUMP SUM	LUMP SUM				
503	CU. YD.	1,573	1,573	3,146	UNCLASSIFIED EXCAVATION	270	270	1,234	1,234				
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM				
507	LIN. FT.	2,126	2,126	4,252	STEEL PILES, HP 12 X 53, AS PER PLAN	2,126	2,126						
507	LIN. FT.	9,423	9,423	18,846	STEEL PILES, HP 14 X 89, AS PER PLAN			9,423	9,423				
507	LIN. FT.	3,348	3,348	6,696	16" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3,348	3,348				
507	LIN. FT.	3,828	3,828	7,656	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3,828	3,828				
507	EACH	225	225	450	STEEL POINTS, AS PER PLAN	15	15	210	210				
509	LB.	468,434	468,434	936,868	REINFORCING STEEL, GRADE 60	13,429	13,429	455,005	455,005				
511	CU. YD.	3,738	3,701	7,439	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					3,738	3,701		
511	CU. YD.	1,909	1,909	3,818	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			1,909	1,909				
511	CU. YD.	133	133	266	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	133	133						
511	CU. YD.	912	912	1,824	CLASS "C" CONCRETE, FOOTINGS	83	83	829	829				
511	CU. YD.	289	289	578	CLASS "C" CONCRETE, DIAPHRAGMS FOR PRESTRESSED BEAMS					289	289		
513	LB.	819,100	819,100	1,638,200	STRUCTURAL STEEL, (AISC CATEGORY III) (SEE PROPOSAL NOTE)					819,100	819,100		
513	EACH	4,590	4,590	9,180	WELDED STUD SHEAR CONNECTORS					4,590	4,590		
515					PRESTRESSED CONCRETE BRIDGE MEMBERS (SEE PROPOSAL NOTE)								
	EACH	80	80	160	TYPE I, AS PER PLAN					80	80		
	EACH	10	10	20	TYPE II, AS PER PLAN					10	10		
	EACH	15	15	30	TYPE III, AS PER PLAN					15	15		
	EACH	3	-	3	TYPE IV, AS PER PLAN					3	-		
	EACH	2	-	2	TYPE V, AS PER PLAN					2	-		
	EACH	-	3	3	TYPE VI, AS PER PLAN					-	3		
	EACH	-	2	2	TYPE VII, AS PER PLAN					-	2		
516	EACH	20	20	40	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A)					20	20		
516	EACH	170	170	340	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE B)					170	170		
516	EACH	30	30	60	10 1/2" X 22" X 1" LAMINATED ELASTOMERIC BEARINGS (TYPE C)					30	30		
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE I)					42	42		
516	LIN. FT.	84	84	168	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					84	84		
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE III)					44	44		
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE IV)					44	44		
518	LIN. FT.	74	74	148	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	74	74						
518	LIN. FT.	56	56	112	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE	56	56						
518	EACH	50	50	100	SCUPPERS, INCLUDING SUPPORTS					50	50		
518	CU. YD.	69	69	138	POROUS BACKFILL, AS PER PLAN	69	69						
523	HOUR	3	3	6	DYNAMIC LOAD TEST	3	3						
601	SQ. YD.	651	545	1,196	CRUSHED AGGREGATE SLOPE PROTECTION	651	545						
SPECIAL	LUMP	LUMP	LUMP	LUMP	TESTING OF LAMINATED ELASTOMERIC BRGS. W/SLIDING SURFACES, TYPE A&B							LUMP	LUMP
824	LB.	992,181	984,154	1,976,335	EPOXY COATED REINFORCING STEEL, GRADE 60	2,881	2,879			989,300	981,275		
SPECIAL	SQ. YD.	6,143	6,082	12,225	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)	85	85			6,058	5,997		
SPECIAL	S.F.	10,049	10,049	20,098	PROTECTION OF CONCRETE SURFACES (SEE PROPOSAL NOTE)			10,049	10,049				
* SPECIAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	TEST PILE PROGRAM							LUMP SUM	LUMP SUM

* - INDICATES TEST PILE PROGRAM MAY BE PERFORMED ON EITHER WESTBOUND OR EASTBOUND STRUCTURE.

ALTERNATE-2

3/43

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EST. QUANTITIES SUMMARY
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

FHWA REGION	STATE	PROJECT	
5	OHIO		

(21SA 326)

ERIE COUNTY
ERI-2-18.38

ESTIMATED QUANTITIES UNIT 1

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL	
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND
503	CU. YD.	130	130	260	UNCLASSIFIED EXCAVATION	130	130						
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM					
507	LIN. FT.	611	611	1,222	STEEL PILES, HP 12 X 53, AS PER PLAN	611	611						
507	LIN. FT.	3,348	3,348	6,696	16" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			3,348	3,348				
507	LIN. FT.	1,476	1,476	2,952	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			1,476	1,476				
507	EACH	13	13	26	STEEL POINTS, AS PER PLAN	13	13						
509	LB.	48,646	48,647	97,293	REINFORCING STEEL, GRADE 60	6,265	6,265	42,381	42,382				
511	CU. YD.	888	888	1,776	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					888	888		
511	CU. YD.	239	239	478	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			239	239				
511	CU. YD.	60	60	120	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	60	60						
511	CU. YD.	39	39	78	CLASS "C" CONCRETE, FOOTINGS	39	39						
511	CU. YD.	91	91	182	CLASS "C" CONCRETE, DIAPHRAGMS FOR PRESTRESSED BEAMS					91	91		
515					PRESTRESSED CONCRETE BRIDGE MEMBERS								
	EACH	25	25	50	TYPE I, AS PER PLAN					25	25		
	EACH	5	5	10	TYPE II, AS PER PLAN					5	5		
	EACH	5	5	10	TYPE III, AS PER PLAN					5	5		
516	EACH	5	5	10	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A)					5	5		
516	EACH	55	55	110	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE B)					55	55		
516	EACH	10	10	20	10 1/2" X 22" X 1" LAMINATED ELASTOMERIC BEARINGS (TYPE C)					10	10		
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE I)					42	42		
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					42	42		
518	LIN. FT.	35	35	70	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	35	35						
518	LIN. FT.	27	27	54	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE	27	27						
518	EACH	12	12	24	SCUPPERS, INCLUDING SUPPORTS					12	12		
518	CU. YD.	30	30	60	POROUS BACKFILL, AS PER PLAN	30	30						
601	SQ. YD.	160	104	264	CRUSHED AGGREGATE SLOPE PROTECTION	160	104						
824	LB.	245,201	245,200	490,401	EPOXY COATED REINFORCING STEEL, GRADE 60	1,383	1382			243,818	243,818		
SPECIAL	LUMP	LUMP	LUMP	LUMP	TESTING OF LAMINATED ELASTOMERIC BRGS. W/ SLIDING SURFACES, TYPE A & B							LUMP	LUMP
SPECIAL	SQ. YD.	1,495	1,495	2990	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE	38	38			1,457	1,457		

ALTERNATE-2

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CONSULTING ENGINEERS CLEVELAND OHIO 44130

EST. QUANTITIES UNIT 1
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

FEB 4 1982

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

215B 326

ERIE COUNTY
ERI-2-18.38

ESTIMATED QUANTITIES UNIT 2

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL					
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND				
503	CU. YD.	233	233	466	UNCLASSIFIED EXCAVATION			233	233								
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP SUM	LUMP SUM								
507	LIN. FT.	1,840	1,840	3,680	STEEL PILES, HP 14 X 89, AS PER PLAN			1,840	1,840								
507	LIN. FT.	2,352	2,352	4,704	18" Ø CAST-IN-PLACE CONCRETE PILES, AS PER PLAN			2,352	2,352								
507	EACH	40	40	80	STEEL POINTS, AS PER PLAN			40	40								
509	LB.	85,760	85,759	171,519	REINFORCING STEEL, GRADE 60			85,760	85,759								
511	CU. YD.	891	891	1,782	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					891	891						
511	CU. YD.	363	363	726	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			363	363								
511	CU. YD.	139	139	278	CLASS "C" CONCRETE, FOOTINGS			139	139								
511	CU. YD.	92	92	184	CLASS "C" CONCRETE, DIAPHRAGMS FOR PRESTRESSED BEAMS					92	92						
515					PRESTRESSED CONCRETE BRIDGE MEMBERS *(SEE PROPOSAL NOTE)*												
	EACH	25	25	50	TYPE I, AS PER PLAN					25	25						
	EACH	5	5	10	TYPE II, AS PER PLAN					5	5						
	EACH	5	5	10	TYPE III, AS PER PLAN					5	5						
516	EACH	5	5	10	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A)					5	5						
516	EACH	55	55	110	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE B)					55	55						
516	EACH	10	10	20	10 1/2" X 22" X 1" LAMINATED ELASTOMERIC BEARINGS (TYPE C)					10	10						
516	LIN. FT.	42	42	84	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE II)					42	42						
518	EACH	12	12	24	SCUPPERS, INCLUDING SUPPORTS					12	12						
824	LB.	243,472	243,473	486,945	EPOXY COATED REINFORCING STEEL, GRADE 60					243,472	243,473						
SPECIAL	LUMP	LUMP	LUMP	LUMP	TESTING OF LAMINATED ELASTOMERIC BRGS. W/SLIDING SURFACES, TYPE A & B							LUMP	LUMP				
SPECIAL	SQ YDS.	1,454	1,454	2,908	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE					1454	1,454						

ALTERNATE-2

5/43

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EST. QUANTITIES UNIT 2

BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

ERIE COUNTY — STA. 1233+43.75 TO
ERI-2-18.38 — STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

FEB 4 1982

FHWA REGION 5 | STATE OHIO | PROJECT

215C 326

ERIE COUNTY
ERI-2-18.38

ESTIMATED QUANTITIES UNIT 3

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL	
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND
503	CU. YD.	574	574	1,148	UNCLASSIFIED EXCAVATION			574	574				
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION			LUMP SUM	LUMP SUM				
507	LIN. FT.	4,619	4,619	9,238	STEEL PILES, HP 14 X 89, AS PER PLAN			4,619	4,619				
507	EACH	97	97	194	STEEL POINTS, AS PER PLAN			97	97				
509	LB.	199,095	199,095	398,190	REINFORCING STEEL, GRADE 60			199,095	199,095				
511	CU. YD.	1,002	965	1,967	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					1,002	965		
511	CU. YD.	717	717	1,434	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			717	717				
511	CU. YD.	349	349	698	CLASS "C" CONCRETE, FOOTINGS			349	349				
511	CU. YD.	106	106	212	CLASS "C" CONCRETE, DIAPHRAGMS FOR PRESTRESSED BEAMS					106	106		
515					PRESTRESSED CONCRETE BRIDGE MEMBERS (SEE PROPOSAL NOTE)								
	EACH	30	30	60	TYPE I, AS PER PLAN					30	30		
	EACH	5	5	10	TYPE III, AS PER PLAN					5	5		
	EACH	3	–	3	TYPE IV, AS PER PLAN					3	–		
	EACH	2	–	2	TYPE V, AS PER PLAN					2	–		
	EACH	–	3	3	TYPE VI, AS PER PLAN					–	3		
	EACH	–	2	2	TYPE VII, AS PER PLAN					–	2		
516	EACH	10	10	20	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE A)					10	10		
516	EACH	60	60	120	LAMINATED ELASTOMERIC BEARINGS WITH SLIDING SURFACES (TYPE B)					60	60		
516	EACH	10	10	20	10 1/2" X 22" X 1" LAMINATED ELASTOMERIC BEARINGS (TYPE C)					10	10		
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE III)					44	44		
518	EACH	13	13	26	SCUPPERS, INCLUDING SUPPORTS					13	13		
824	LB.	277,525	269,498	547,023	EPOXY COATED REINFORCING STEEL, GRADE 60					277,525	269,498		
SPECIAL	LUMP	LUMP	LUMP	LUMP	TESTING OF LAMINATED ELASTOMERIC BRGS. W/SLIDING SURFACES, TYPE A & B							LUMP	LUMP
SPECIAL	SQ. YDS.	1,649	1,588	3,237	SEALING OF CONCRETE SURFACES, SEE PROPOSAL NOTE					1,649	1,588		

ALTERNATE - 2

6/43

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EST. QUANTITIES UNIT 3
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

FEB 4 - 1992

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

ERIE COUNTY
ERI-2-18.38

2150
326

ESTIMATED QUANTITIES UNIT 4

ITEM	UNIT	WESTBOUND	EASTBOUND	TOTAL	DESCRIPTION	ABUTMENTS		PIER		SUPERSTR.		GENERAL	
						WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	EASTBOUND
503	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	COFFERDAMS, CRIBS AND SHEETING			LUMP SUM	LUMP SUM				
503	CU. YD.	636	636	1,272	UNCLASSIFIED EXCAVATION	149	149	487	487				
505	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM				
507	LIN. FT.	1,515	1,515	3,030	STEEL PILES, HP 12 X 53, AS PER PLAN	1,515	1,515						
507	LIN. FT.	2,964	2,964	5,928	STEEL PILES, HP 14 X 89, AS PER PLAN			2,964	2,964				
507	EACH	75	75	150	STEEL POINTS, AS PER PLAN	15	15	60	60				
509	LB.	134,933	134,933	269,866	REINFORCING STEEL, GRADE 60	7,164	7,164	127,769	127,769				
511	CU. YD.	957	957	1,914	CLASS "S" CONCRETE, SUPERSTRUCTURE, AS PER PLAN					957	957		
511	CU. YD.	590	590	1,180	CLASS "C" CONCRETE, PIER CAPS AND PIERS ABOVE FOOTINGS			590	590				
511	CU. YD.	73	73	146	CLASS "C" CONCRETE, ABUTMENTS ABOVE FOOTINGS	73	73						
511	CU. YD.	385	385	770	CLASS "C" CONCRETE, FOOTINGS	44	44	341	341				
513	LB.	819,100	819,100	1,638,200	STRUCTURAL STEEL (AISC CATEGORY III) (SEE PROPOSAL NOTE)					819,100	819,100		
513	EACH	4,590	4,590	9,180	WELDED STUD SHEAR CONNECTORS					4,590	4,590		
516	LIN. FT.	44	44	88	STRUCT. EXP. JOINTS INCL. ELAST. COMP. SEALS (TYPE IV)					44	44		
518	CU. YD.	39	39	78	POROUS BACKFILL, AS PER PLAN	39	39						
518	LIN. FT.	39	39	78	6" PERFORATED, HELICAL CORRUGATED STEEL PIPE, 707.01	39	39						
518	LIN. FT.	29	29	58	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	29	29						
518	EACH	13	13	26	SCUPPER, INCLUDING SUPPORTS					13	13		
523	HOUR	3	3	6	DYNAMIC LOAD TEST	3	3						
601	SQ. YD.	491	441	932	CRUSHED AGGREGATE SLOPE PROTECTION	491	441						
824	LB.	225,983	225,983	451,966	EPOXY COATED REINFORCING STEEL, GRADE 60	1,498	1,497			224,485	224,486		
SPECIAL	SQ. FT.	10,049	10,049	20,098	PROTECTION OF CONCRETE SURFACES (SEE PROPOSAL NOTE)			10,049	10,049				
SPECIAL	SQ. YDS.	1,545	1,545	3090	SEALING OF CONCRETE SURFACES (SEE PROPOSAL NOTE)	47	47			1,498	1,498		

ALTERNATE-2

7/43

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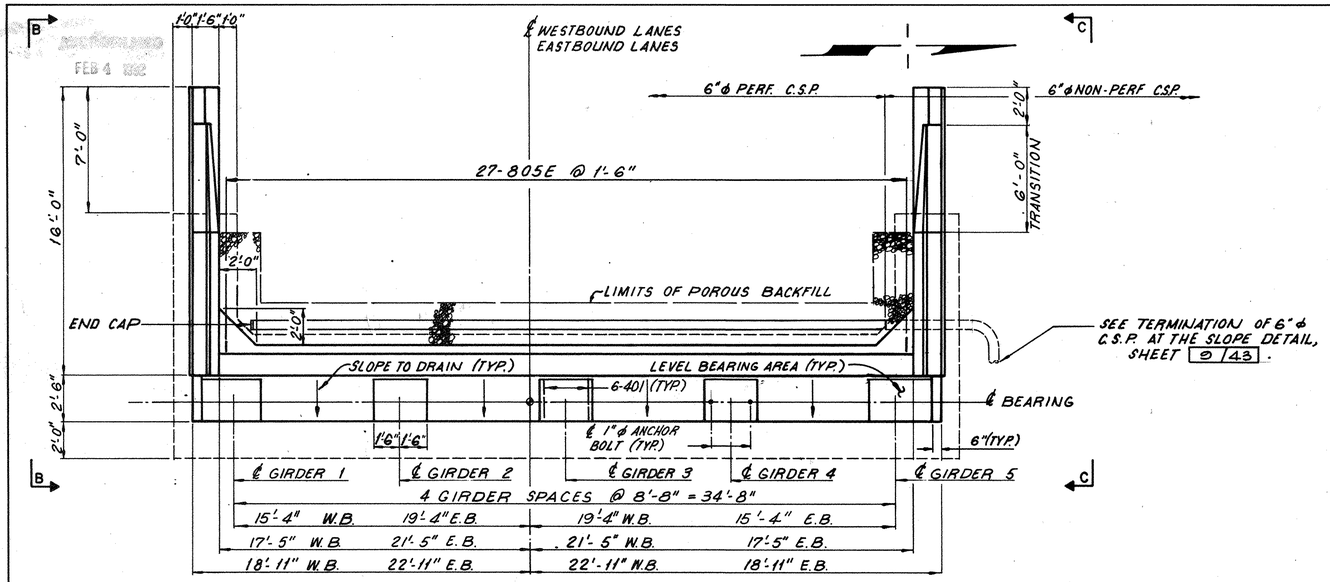
EST. QUANTITIES UNIT 4

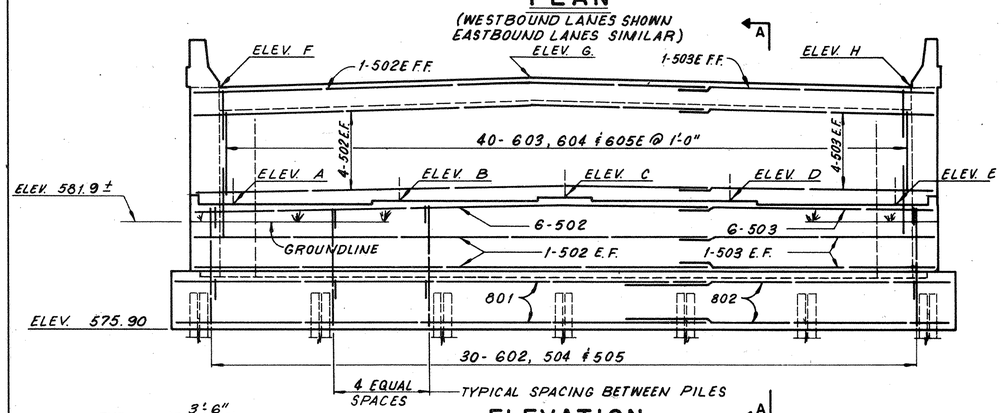
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

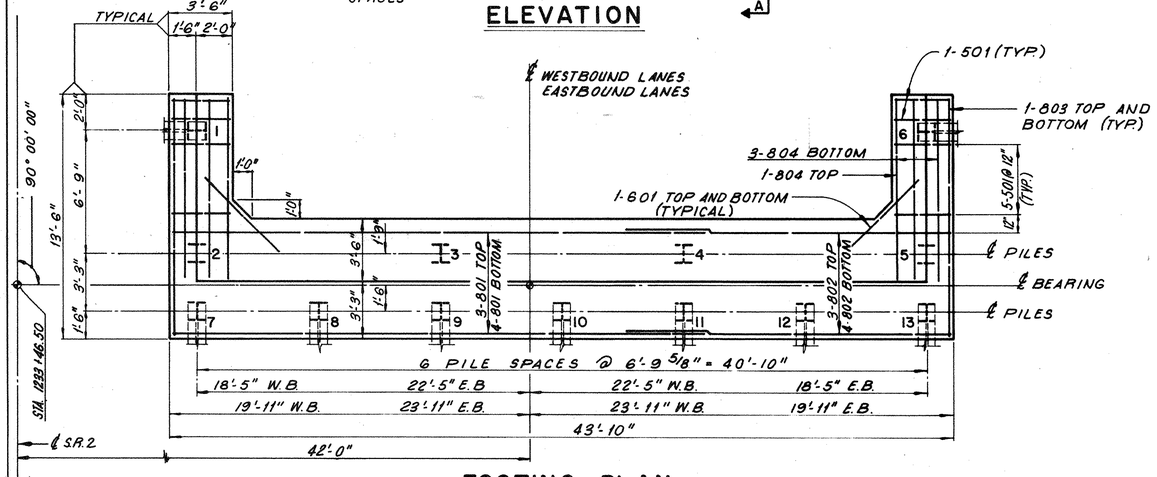


PLAN

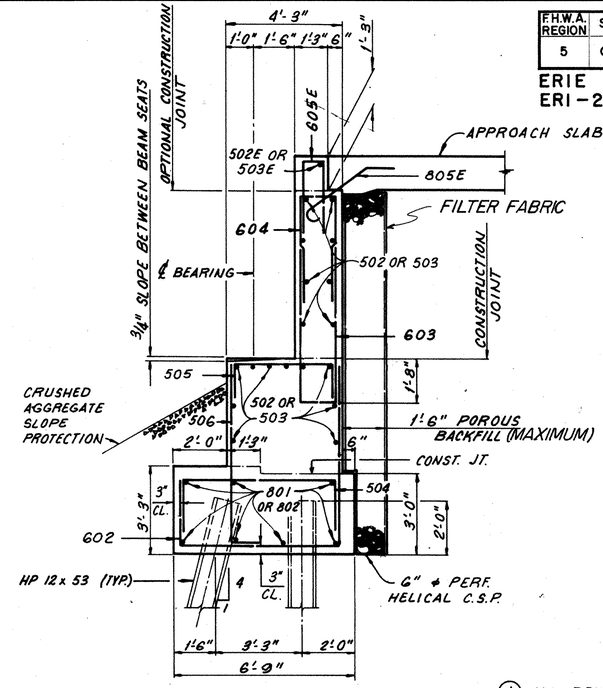
(WESTBOUND LANES SHOWN EASTBOUND LANES SIMILAR)



ELEVATION



FOOTING PLAN



SECTION A-A

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

ERIE COUNTY
ERI-2-18.38

216/326

NOTES:

1. ALL REINFORCING STEEL IN ABUTMENT NO. 1 SHALL BE PREFIXED 1A.
2. REINFORCING STEEL WITH SUFFIX 'E' SHALL BE EPOXY COATED.
3. IN ADDITITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
4. POROUS BACKFILL 1.5 FT. THICK (2.0 FT. AT WINGWALLS) SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND BACK TO THE ENDS OF THE WINGWALLS.
5. ALL PILES SHOWN BATTERED SHALL BE BATTERED 1 IN 4 IN THE DIRECTION SHOWN.
6. FOR VIEWS B-B AND C-C, SEE SHEET 9/43.
7. FOR EXPANSION JOINT DETAILS, SEE SHEET 32/43 & 34/43
8. THE FOLLOWING ABBREVIATIONS ARE USED

E.B. = EASTBOUND	E.F. = EACH FACE
W.B. = WESTBOUND	N.F. = NEAR FACE
TYP. = TYPICAL	F.F. = FAR FACE
C.S.P. = CORRUGATED STEEL PIPE	
LT. = LEFT	RT. = RIGHT

9. FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS, SEE SHEETS 35/43 & 42/43

10. REINFORCING STEEL IN THE VICINITY OF THE BEAM SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
11. AT THE OPTION OF THE CONTRACTOR BEARING ANCHORS (OR FORMED HOLES) LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST-IN-PLACE.

ALTERNATE-2

ELEVATION TABLE

LOCATION	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
EASTBOUND	583.04	583.17	583.25	583.11	582.98	588.92	589.25	588.98
WESTBOUND	582.98	583.11	583.25	583.17	583.04	588.98	589.25	588.92

8/43

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ABUTMENT NO. 1 L/R
BRIDGE N° ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

ERIE COUNTY ERI-2-18.38
STA. 1233+43.75 TO STA. 1259+37.37

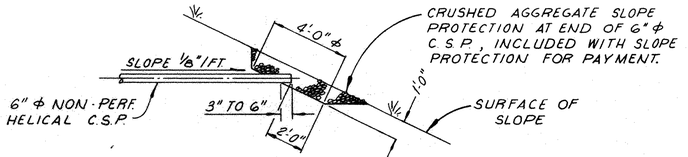
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M. / M.B.	L.E.D.	11/4/85	

FEB 4 1992

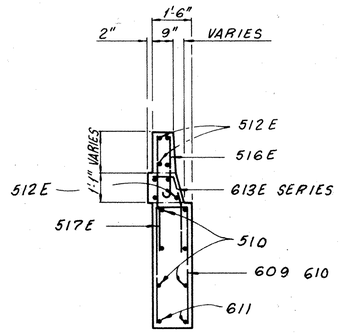
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

216A
32C

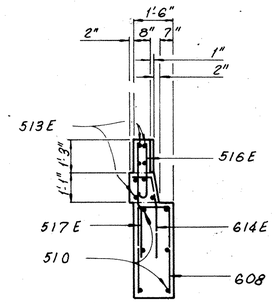
ERIE COUNTY
ERI - 2 - 18.38



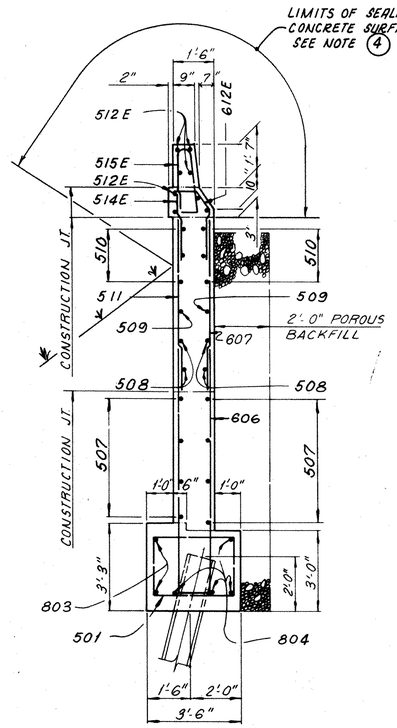
TERMINATION OF 6" ϕ C.S.P. AT THE SLOPE



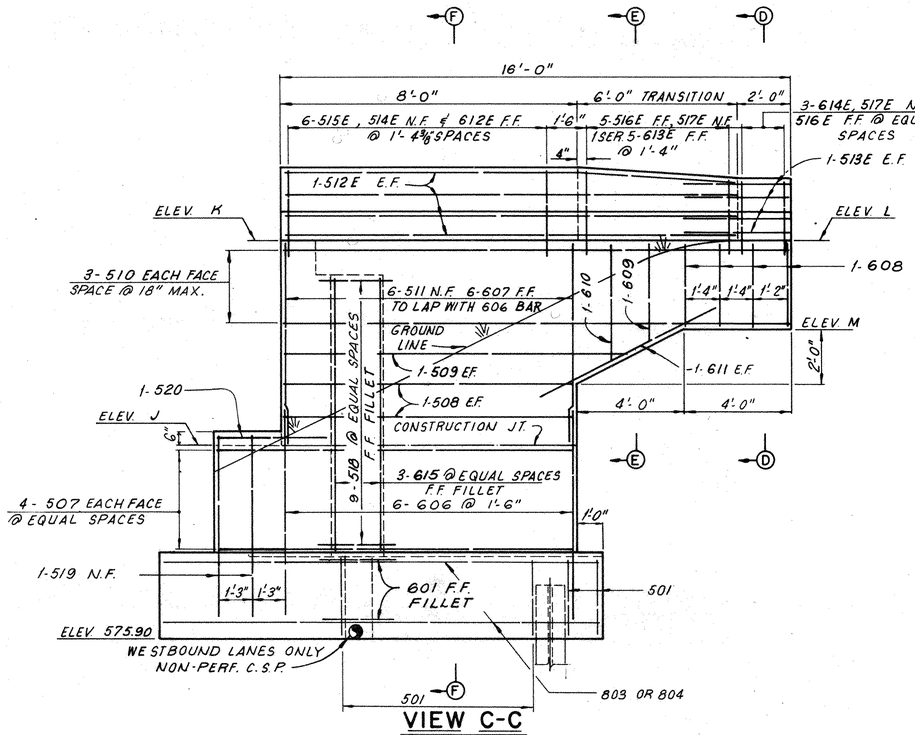
SECTION E-E



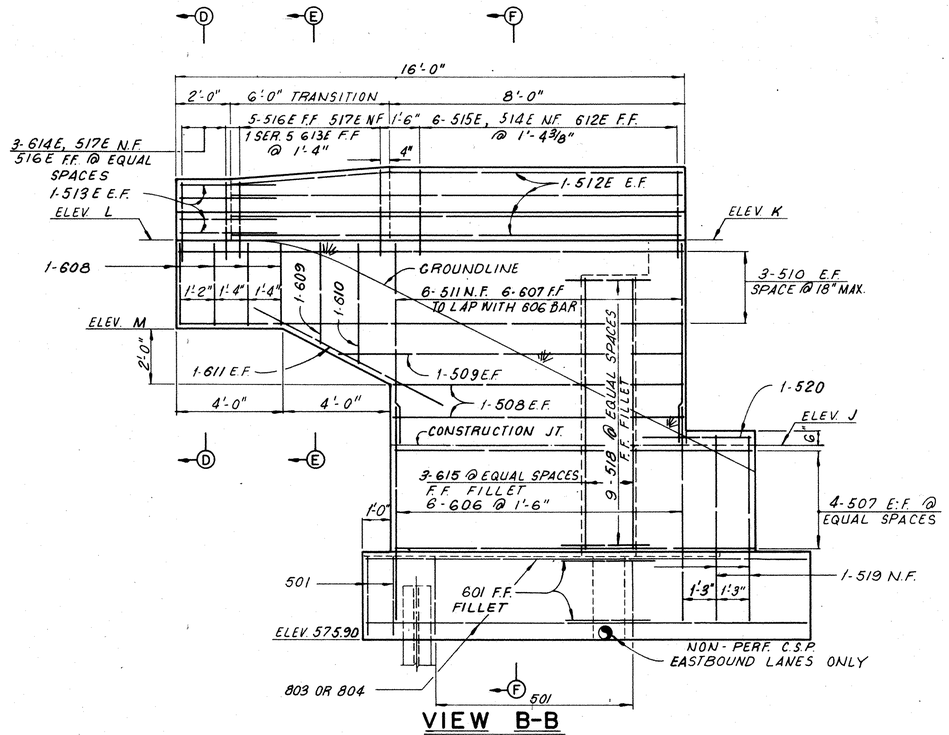
SECTION D-D



SECTION F-F



VIEW C-C



VIEW B-B

NOTES:

1. FOR LOCATION OF VIEWS B-B AND C-C, SEE SHEET 8/43.
2. FOR ADDITIONAL NOTES, SEE SHEET 8/43.
3. FOR RAILING DETAILS NOT SHOWN, SEE STANDARD DRAWING BR-1, SHEET NO. 1 OF 1.
4. ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN SECTION F-F. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEEDURE.

ELEVATION TABLE

LOCATION		ELEV. J	ELEV. K	ELEV. L	ELEV. M
WESTBOUND LANES	NORTH WINGWALL	583.04	588.91	588.83	585.25
	SOUTH WINGWALL	582.98	588.97	588.89	585.25
EASTBOUND LANES	NORTH WINGWALL	582.98	588.97	588.89	585.25
	SOUTH WINGWALL	583.04	588.91	588.83	585.25

ALTERNATE - 2

5/43

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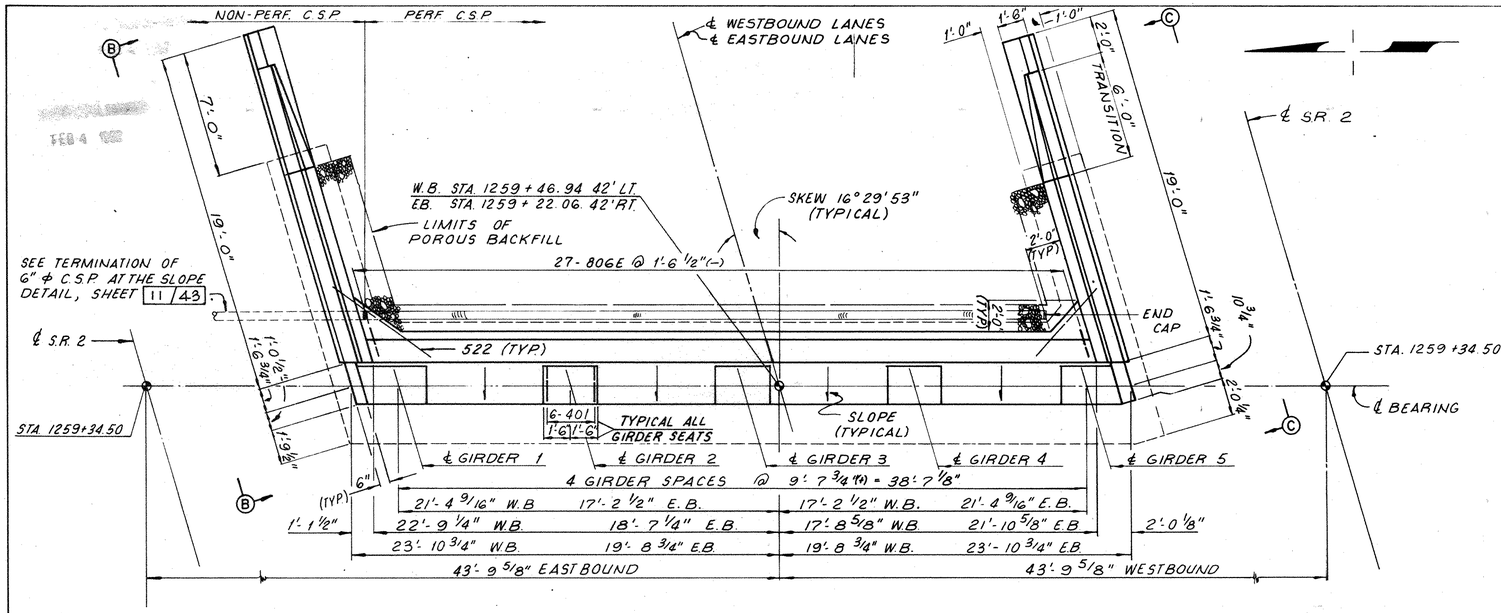
ABUTMENT NO. 1 WINGWALL DETAILS

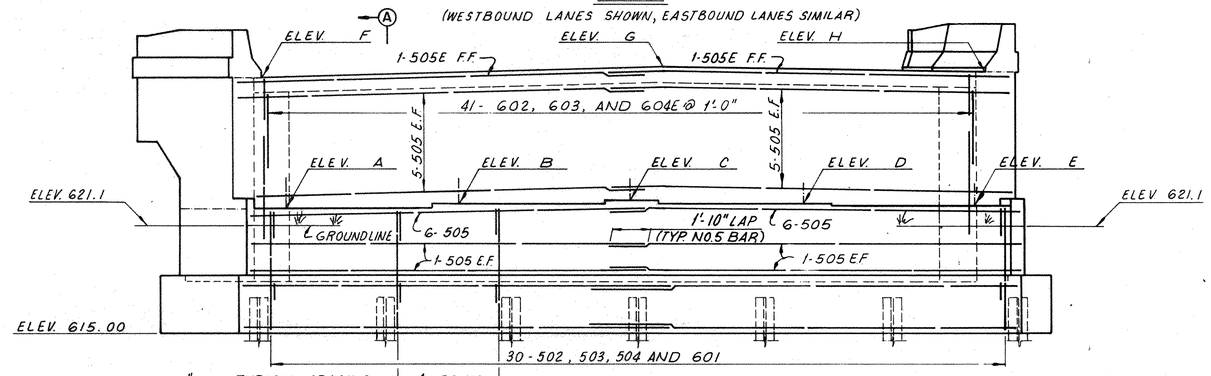
BRIDGE Nº ERI - 2 - 19.11 L / R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233 + 43.75 TO
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
D.R.J.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

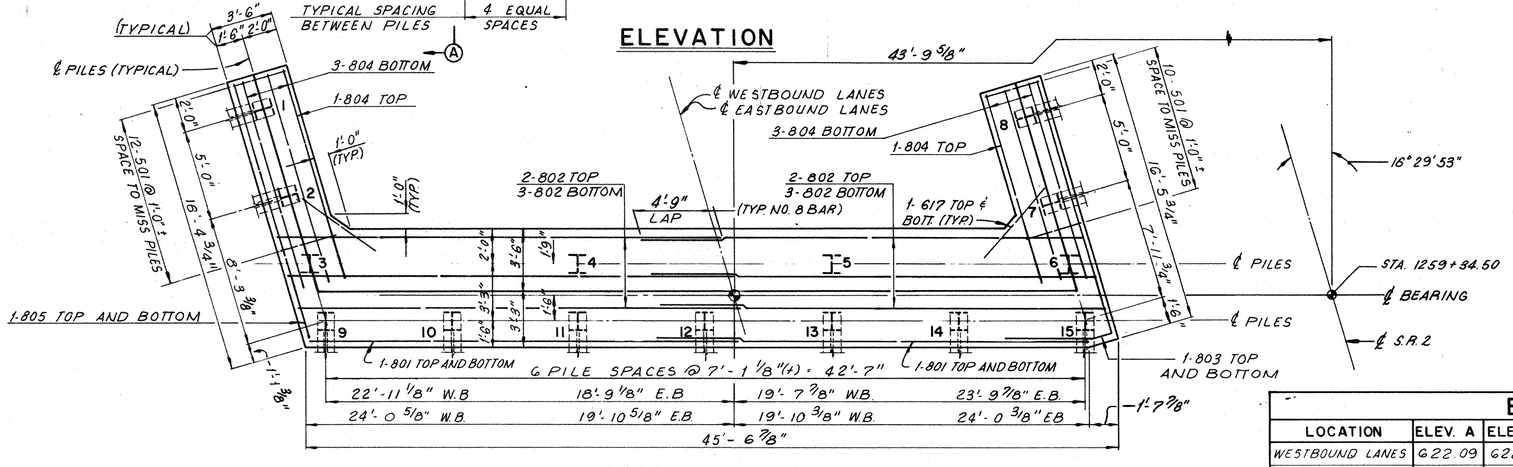


PLAN

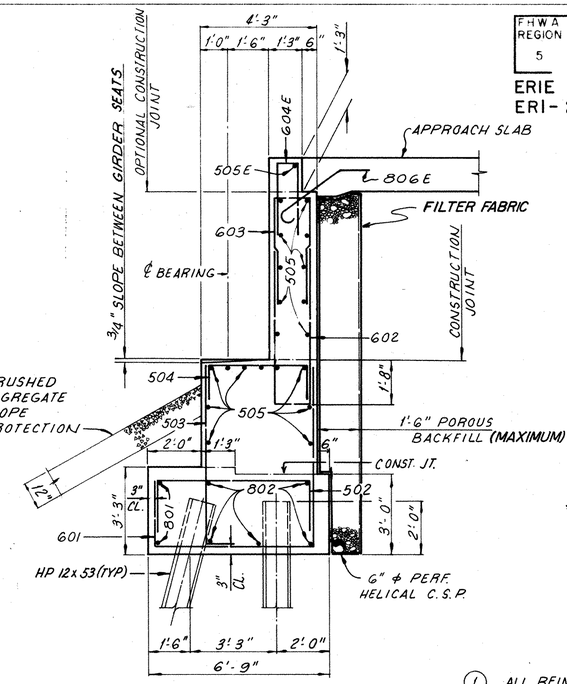
(WESTBOUND LANES SHOWN, EASTBOUND LANES SIMILAR)



ELEVATION



FOOTING PLAN



SECTION A-A

ELEVATION TABLE								
LOCATION	ELEV. A	ELEV. B	ELEV. C	ELEV. D	ELEV. E	ELEV. F	ELEV. G	ELEV. H
WESTBOUND LANES	622.09	622.23	622.37	622.29	622.14	629.64	629.78	629.69
EASTBOUND LANES	622.13	622.27	622.35	622.20	622.05	629.68	629.76	629.60

FHWA REGION 5 | STATE OHIO | PROJECT

216B 326

ERIE COUNTY
ERI-2-18.38

NOTES:

1. ALL REINFORCING STEEL IN ABUTMENT NO.2 SHALL BE PREFIXED 2A.
2. REINFORCING STEEL WITH SUFFIX 'E' SHALL BE EPOXY COATED.
3. IN ADDITION TO THE PROVISIONS OF 511.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
4. POROUS BACKFILL 1.5 FT. THICK (2.0 FT AT WINGWALLS) SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND BACK TO THE ENDS OF THE WINGWALLS.
5. ALL PILES SHOWN BATTERED SHALL BE BATTERED 1 IN 4 IN THE DIRECTION SHOWN.
6. FOR VIEWS B-B AND C-C, SEE SHEET 11/43.
7. FOR EXPANSION JOINT DETAILS, SEE SHEET 32/43 ℄ 34/43.
8. THE FOLLOWING ABBREVIATIONS ARE USED:

   E.B. = EASTBOUND — E.F. = EACH FACE
   W.B. = WESTBOUND — N.F. = NEAR FACE
   TYP. = TYPICAL — F.F. = FAR FACE
   C.S.P. = CORRUGATED STEEL PIPE
   LT. = LEFT — RT. = RIGHT

9. FOR REINFORCING STEEL AND BENDING DIAGRAMS SEE SHEET 35/43 ℄ 42/43.

ALTERNATE-2

10/43

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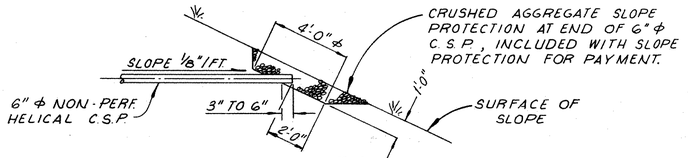
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

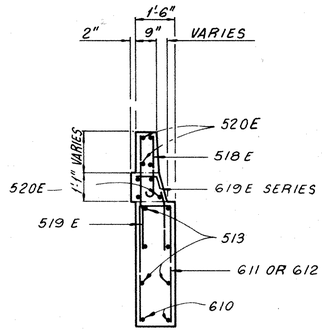
ABUTMENT NO. 2 L/R

BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY — STA. 1233+43.75 TO
ERI-2-18.38 — STA. 1259+37.37

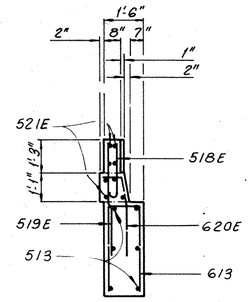
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	L.E.D.	11/4/85	



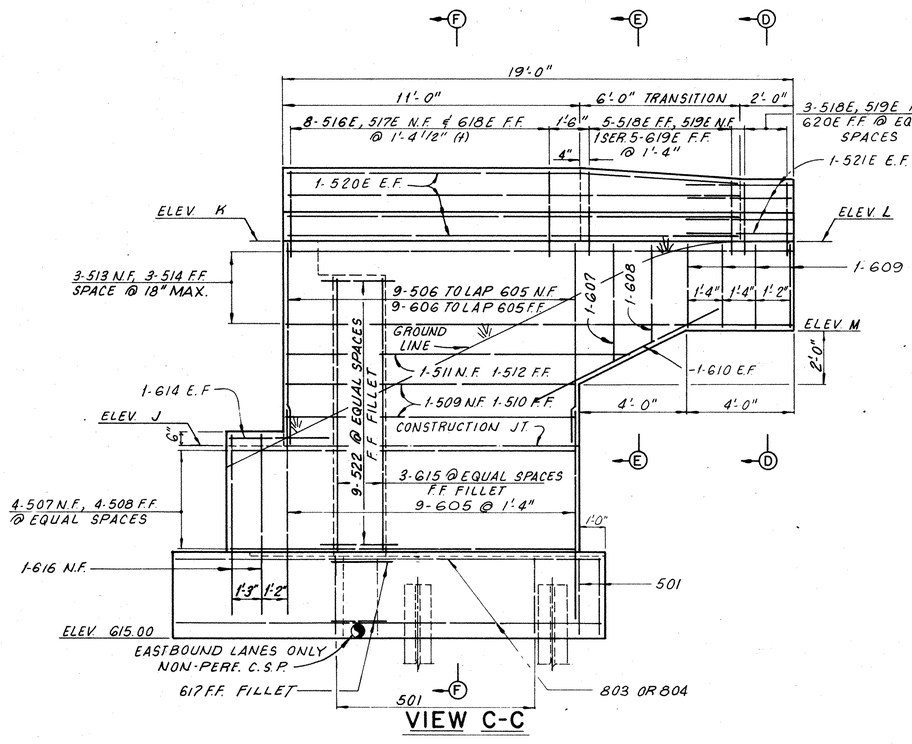
TERMINATION OF 6" ϕ C.S.P. AT THE SLOPE



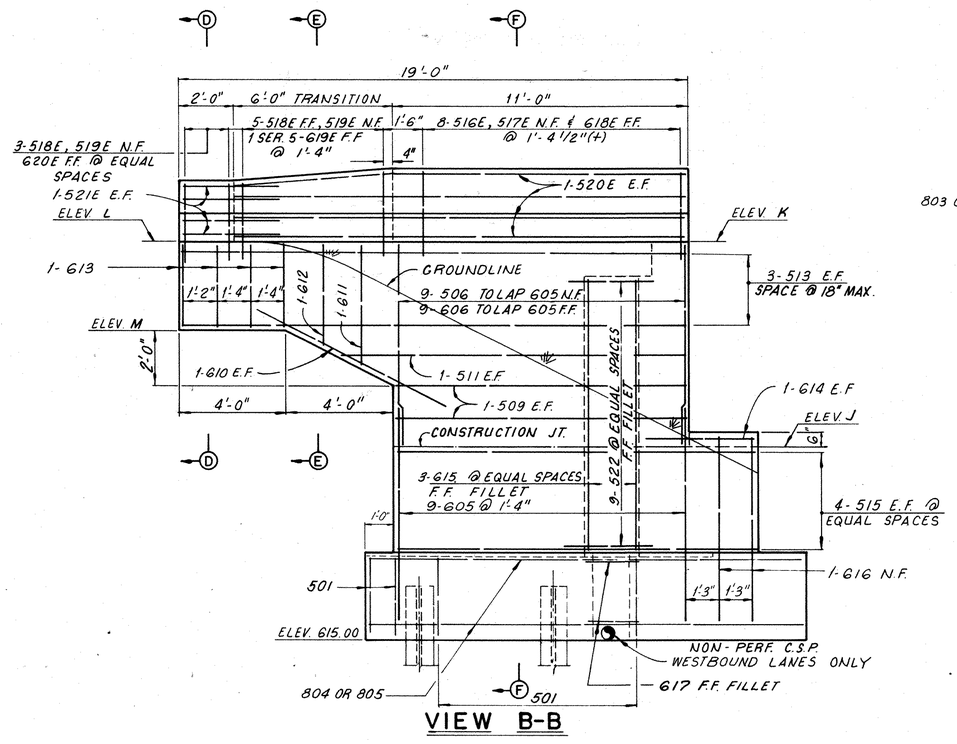
SECTION E-E



SECTION D-D



VIEW C-C



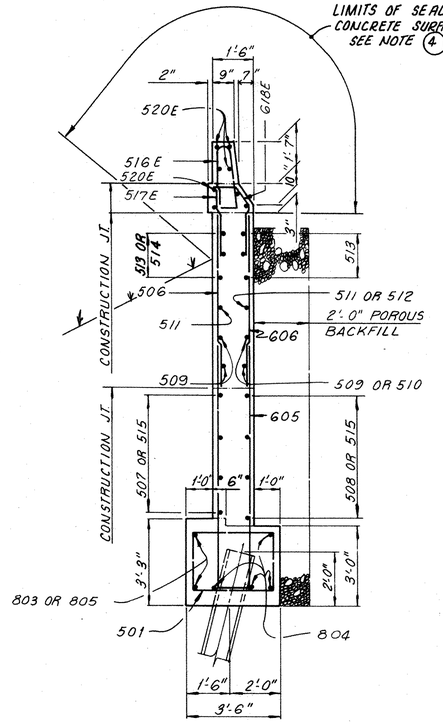
VIEW B-B

ELEVATION TABLE					
LOCATION		ELEV. J	ELEV. K	ELEV. L	ELEV. M
WESTBOUND LANES	NORTH WINGWALL	622.09	629.64	629.64	626.20
	SOUTH WINGWALL	622.14	629.69	629.70	625.95
EASTBOUND LANES	NORTH WINGWALL	622.13	629.68	629.70	626.20
	SOUTH WINGWALL	622.05	629.60	629.63	625.95

FHWA REGION	STATE	PROJECT
5	OHIO	

2166
386

ERIE COUNTY
ERI-2-18.38



SECTION F-F

NOTES:

1. FOR LOCATION OF VIEWS B-B AND C-C, SEE SHEET 10/43.
2. FOR ADDITIONAL NOTES, SEE SHEET 10/43.
3. FOR RAILING DETAILS NOT SHOWN, SEE STANDARD DRAWING BR-1, SHEET NO. 1 OF 1.
4. ITEM SPECIAL, SEALING OF CONCRETE SURFACES. A CONCRETE SEALER, EITHER SILANE OR EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN IN SECTION F-F. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.

ALTERNATE - 2

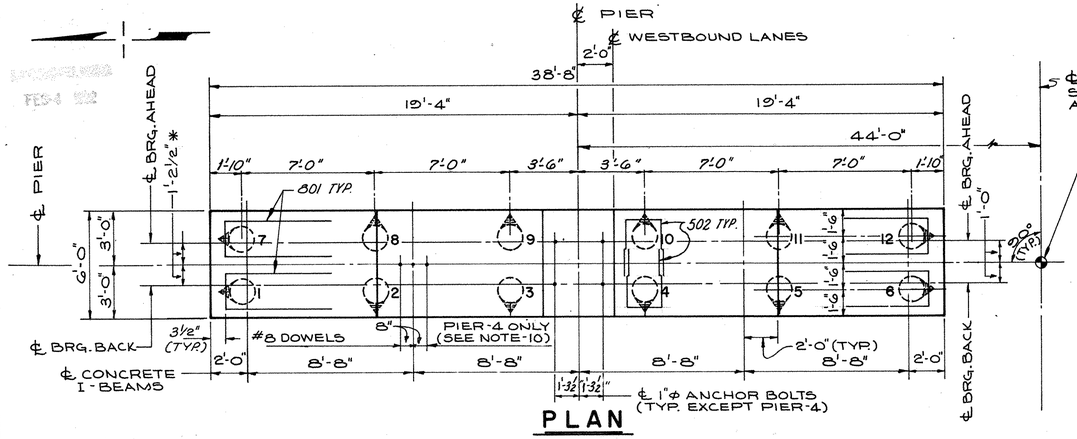
11/43

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND OHIO 44130

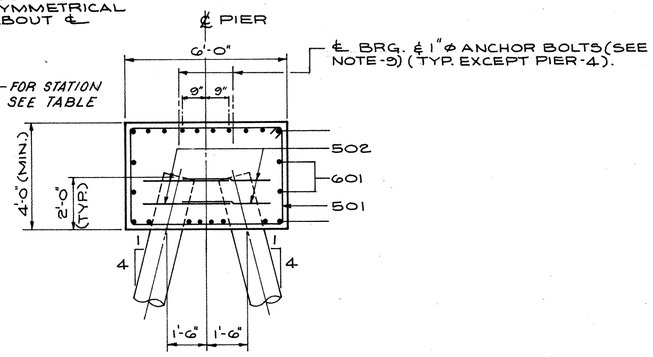
ABUTMENT NO. 2 WINGWALL DETAILS

BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

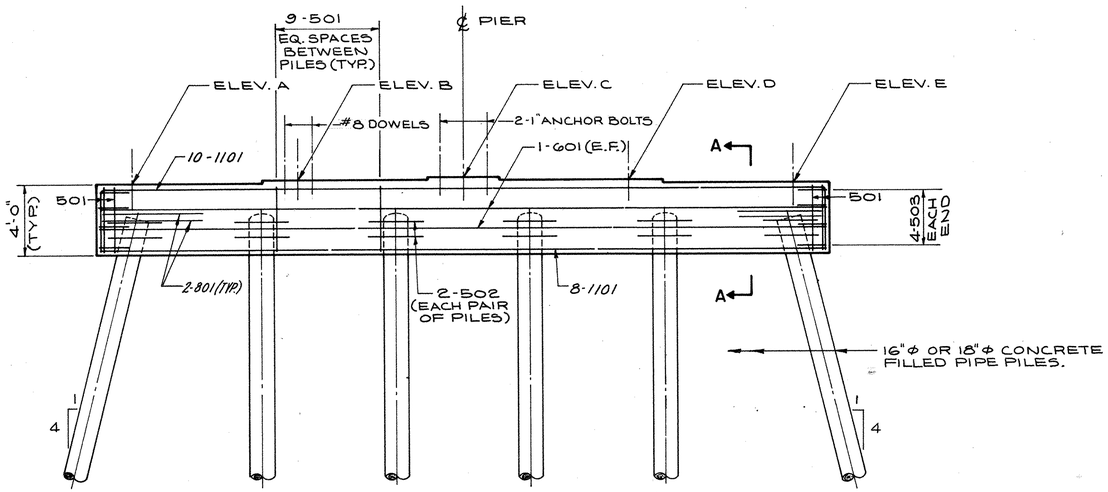
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	L.E.D.	11/4/85	



PLAN



SECTION A-A



ELEVATION

WESTBOUND STRUCTURE SHOWN,
EASTBOUND SIMILAR EXCEPT OPPOSITE HAND

PIER Nº	STATION	ELEVATION-A		ELEVATION-B		ELEVATION-C		ELEVATION-D		ELEVATION-E		PILE DIA.
		BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	
1	1234+35.50	583.40	583.41	583.53	583.54	583.67	583.68	583.60	583.61	583.46	583.47	16"
2	1235+24.50	583.83	583.84	583.96	583.97	584.10	584.11	584.02	584.03	583.89	583.90	16"
3	1236+13.50	584.25	584.26	584.39	584.40	584.52	584.53	584.45	584.46	584.32	584.33	16"
4	1237+02.50	585.12	585.13	585.26	585.27	585.39	585.40	585.32	585.33	585.18	585.19	16"
5	1237+91.50	585.11	585.12	585.24	585.25	585.38	585.39	585.31	585.32	585.17	585.18	16"
6	1238+80.50	585.53	585.54	585.67	585.68	585.81	585.82	585.73	585.74	585.60	585.61	18"
7	1239+69.50	586.02	586.04	586.16	586.17	586.29	586.31	586.22	586.24	586.08	586.10	18"
8	1240+58.50	586.86	586.88	587.00	587.02	587.13	587.15	587.06	587.08	586.92	586.95	18"
9	1241+47.50	588.03	588.06	588.16	588.19	588.30	588.33	588.22	588.25	588.09	588.12	18"
10	1242+36.50	589.51	589.55	589.65	589.69	589.79	589.82	589.71	589.75	589.58	589.61	18"

PROTECTION OF PILES

In lieu of painting the piles as per 507.11 an epoxy coating shall be applied. The coating shall be a moist insensitive 100 % solids epoxy resin with a special blend of fillers made expressly for piling and pier protection. It shall be applied approximately 3/16" thick to surfaces prepared according to the epoxy manufacturers instructions. The epoxy coating shall extend from the bottom of the pier caps down to 4' below the flowline or ground line. The portion of the piles encased in the pier caps need not be coated. The portion of the pile to be coated below the flowline or ground line shall be coated before that portion of the pile is driven. Cost of the epoxy coating shall be included with the piles for payment.

CALC.		OHIO
DATE		F.H.W.A. REGION 5
CHKD.		
DATE		

216D 326

ERIE COUNTY
ERI-2-18.38

NOTES:

1. BRIDGE SEAT ELEVATIONS HAVE BEEN ADJUSTED UPWARD 0.14" AT PIERS Nº 1 THRU 3, 5 THRU 10, 12 THRU 17 AND 19 THRU 22 BACK.
2. ABBREVIATIONS USED:
   E.F. = EACH FACE
   EQ. SP. = EQUAL SPACES
   TYP. = TYPICAL
   ELEV. = ELEVATION
   EA. = EACH
   RAD. = RADIUS
   BRG. = BEARING
3. AT THE OPTION OF THE CONTRACTOR, BEARING ANCHORS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.
4. THE PREFIX "1P", "2P" THRU "10P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIER Nº'S. 1, 2 THRU 10 RESPECTIVELY.
5. ◯ INDICATES DIRECTION OF 4 IN 1 BATTER.
6. PILE SPACING MEASURED AT BOTTOM OF CONCRETE CAPBEAM.
7. THE DIFFERENCE BETWEEN BACK AND AHEAD ELEVATIONS SHALL BE MADE UP BY EITHER SHIMMING OR FORMING AT THE CONTRACTORS OPTION.
8. FOR REINFORCING STEEL LIST AND BAR BENDING DIAGRAMS SEE SHEETS 36/43 & 37/43.
9. * - INDICATES PIER Nº 7 ONLY.
10. 1"Φ x 1'-8" SWEDGE ANCHOR BOLTS MAY BE SET 1'-3" INTO 1½"Φ FORMED HOLES OR MAY BE CAST-IN-PLACE AT THE OPTION OF THE CONTRACTOR.
11. #8 DOWEL BARS MAY BE CAST OR SET INTO DRILLED HOLES. SEE DIAPHRAGMS ON TRANSVERSE SECTION SHEET 18/43.
12. REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRESETTING OF BEARING ANCHORS.

ALTERNATE-2

12/43

adache · ciuni · lynn associates
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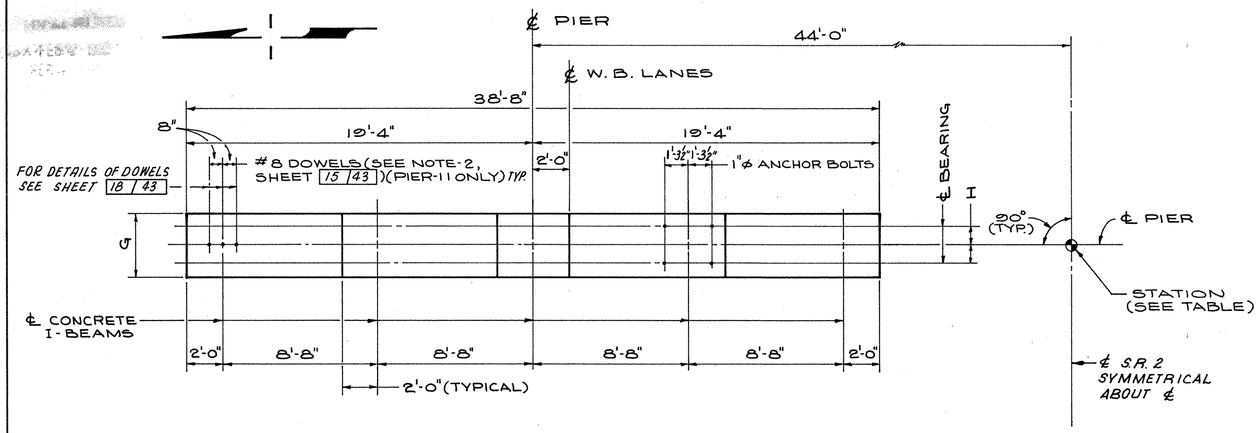
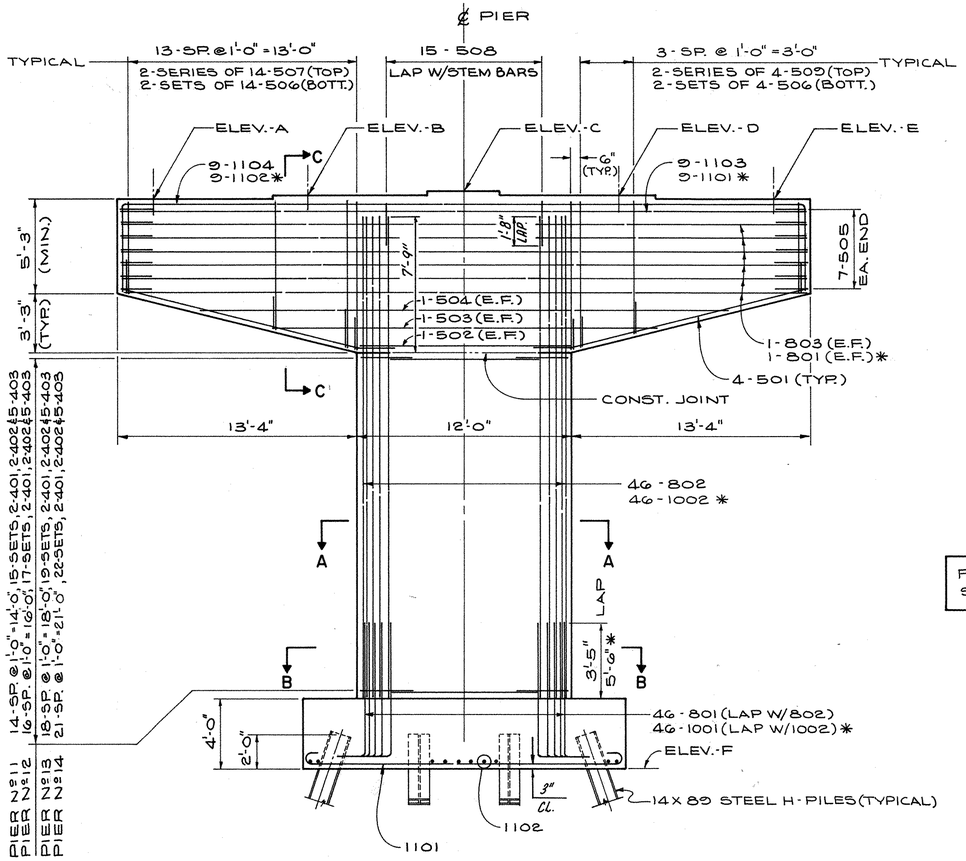
PIER Nº'S. 1 THRU 10
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M. / I.M.B.	L.E.D.	11/4/85	

A-C-L form no. B-1

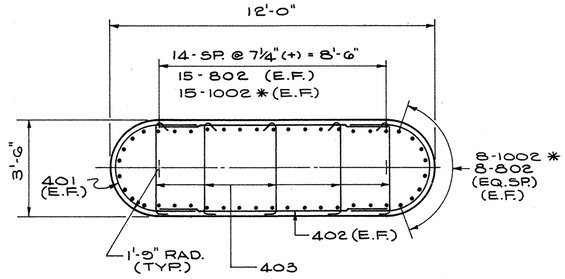


PLAN

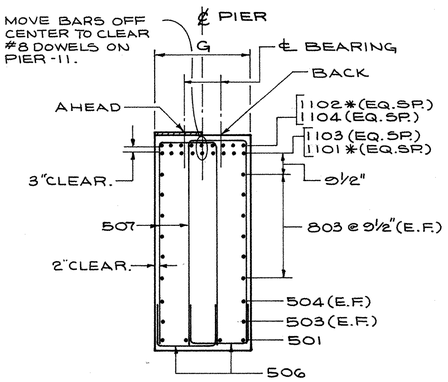


NOTE:
WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR EXCEPT OPPOSITE HAND.

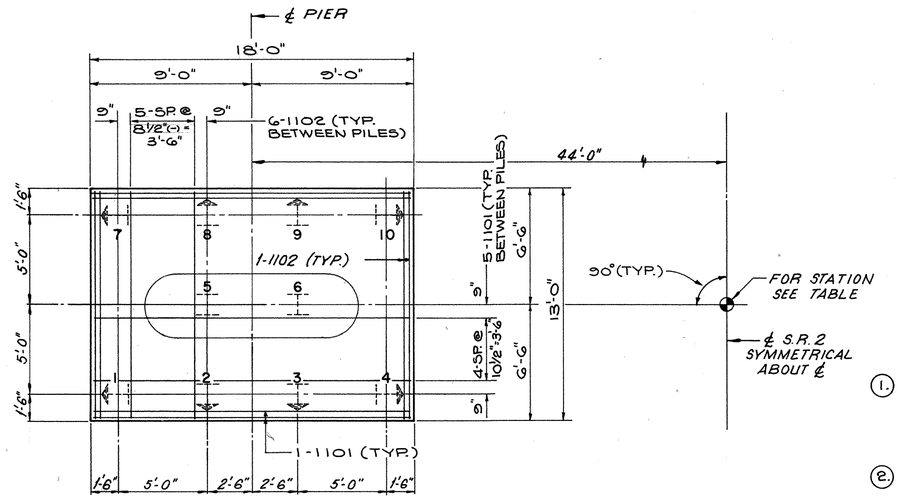
ELEVATION



SECTION A-A



SECTION C-C



VIEW B-B

PIERS 12, 13 & 14 SHOWN, FOR PIER -11 SEE VIEW B-B ON SHEET 15/43

FOR PIER-11 FOOTING DETAILS, SEE SHEET 15/43.

NOTES:

1. THE PREFIX "11P", "12P", "13P" & "14P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 11, 12, 13 & 14 RESPECTIVELY.
2. → INDICATES DIRECTION OF 3 IN 1 BATTER.
3. FOR ADDITIONAL NOTES SEE SHEET 12/43.
4. * INDICATES PIER №11
5. ANCHOR BOLTS: THE ANCHOR BOLTS SHALL BE PRESET OR FORMED HOLES PROVIDED. DRILLING SHALL NOT BE ALLOWED.

TABLE OF ELEVATIONS AND DIMENSIONS

PIER №	STATION	A		B		C		D		E		F	G	H
		BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD			
11	1243+25.50	591.77	591.81	591.90	591.95	592.04	592.08	591.97	592.01	591.83	591.88	564.50	3'-6"	1'-0"
12	1244+14.50	593.47	593.52	593.60	593.65	593.74	593.79	593.66	593.72	593.53	593.58	564.50	3'-6"	1'-0"
13	1245+03.50	595.93	595.99	596.07	596.12	596.20	596.26	596.13	596.19	595.99	596.05	564.50	3'-6"	1'-0"
14	1245+92.50	598.56	598.64	598.70	598.77	598.84	598.91	598.76	598.83	598.63	598.70	564.50	4'-0"	1'-2½"

CALC. ____ DATE ____
CHKD. ____ DATE ____
OHIO F.H.W.A. REGION 5
2/GE 326

ERIE COUNTY
ERIE-2-18.38

ALTERNATE-2 13/43

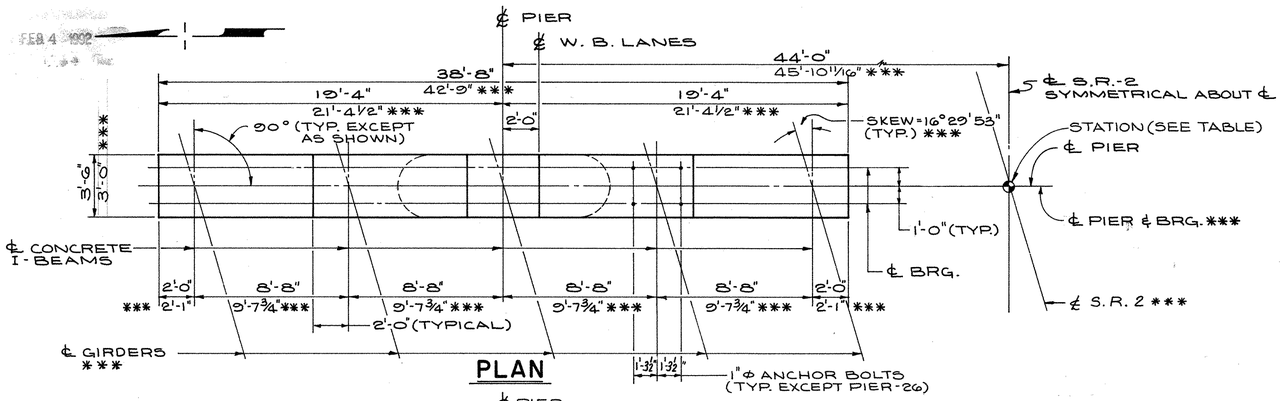
adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

PIER NO'S. 11, 12, 13 & 14
BRIDGE № ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD
ERIE COUNTY STA. 1233+ 43 75 TO
ERI-2-18.38 STA. 1259+ 37.37

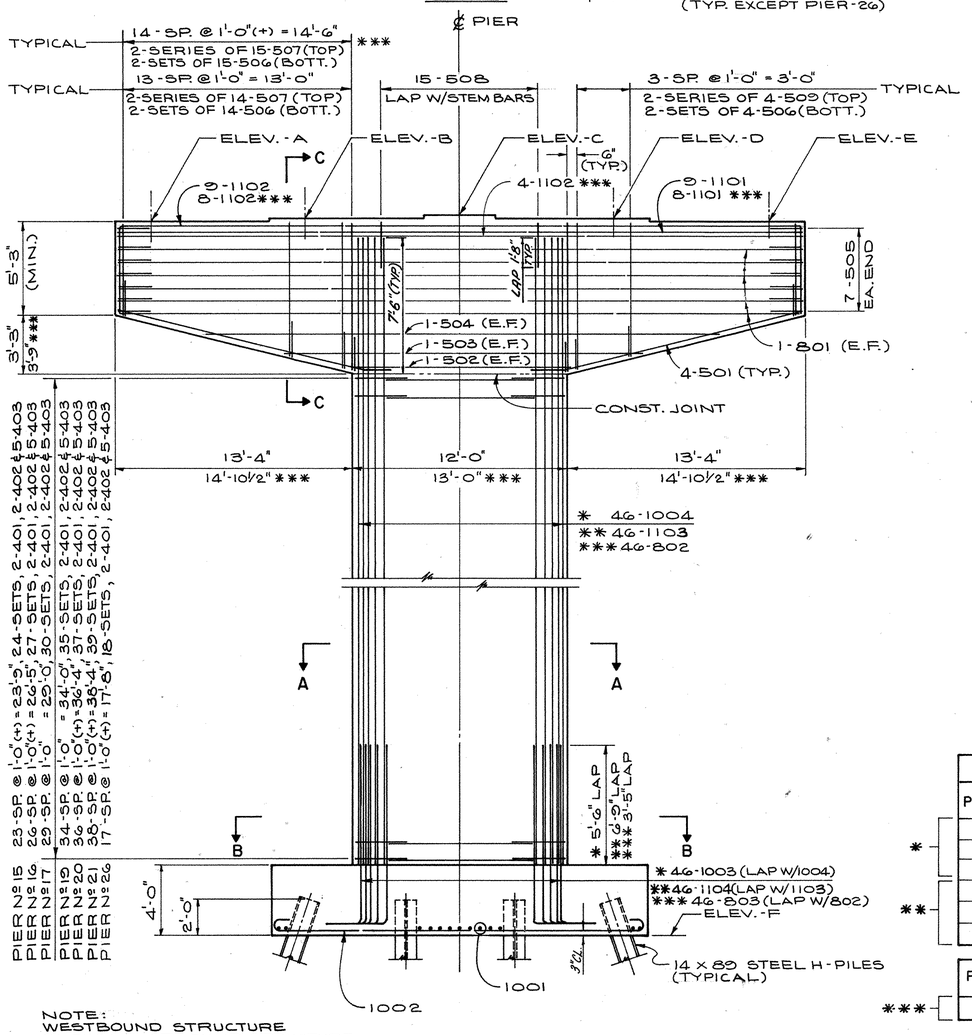
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M. / I.M.B.	L.E.D.	11/4/85	

A-C-L form no. B-1

FEB 4 1992

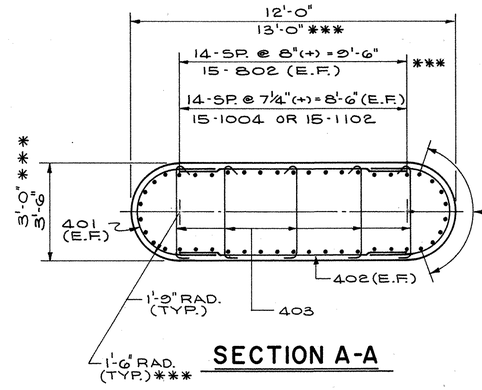


PLAN

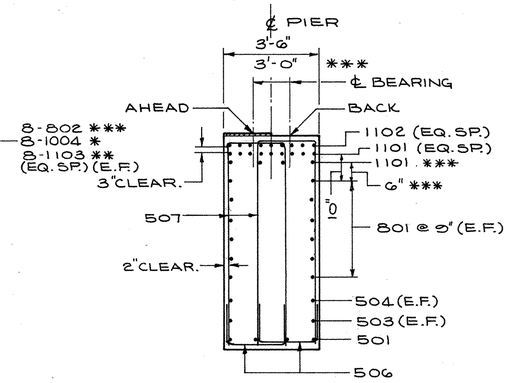


NOTE:
WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR EXCEPT OPPOSITE HAND.

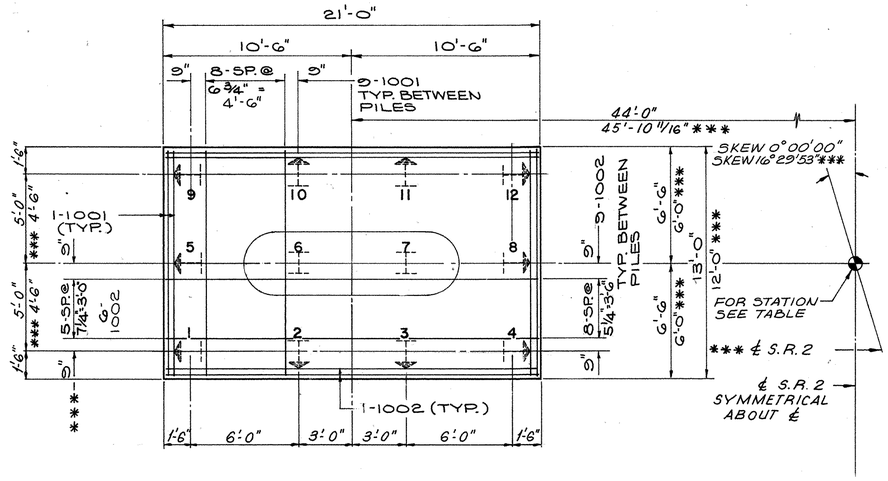
ELEVATION



SECTION A-A



SECTION C-C



VIEW B-B

	PIER Nº	STATION	A BACK	A AHEAD	B BACK	B AHEAD	C BACK	C AHEAD	D BACK	D AHEAD	E BACK	E AHEAD	F
	15	1246+81.50	601.20	601.26	601.33	601.39	601.47	601.53	601.40	601.46	601.26	601.32	564.5
*	16	1247+70.50	603.82	603.87	603.95	604.01	604.09	604.15	604.01	604.07	603.88	603.94	564.5
	17	1248+59.50	606.43	606.49	606.57	606.63	606.70	606.76	606.63	606.69	606.50	606.55	564.5
	19	1250+37.50	611.52	611.57	611.65	611.70	611.79	611.84	611.71	611.77	611.58	611.63	564.5
**	20	1251+26.50	613.74	613.79	613.88	613.92	614.01	614.06	613.94	613.99	613.80	613.85	564.5
	21	1252+15 50	615.74	615.78	615.88	615.92	616.01	616.06	615.94	615.98	615.80	615.85	564.5

	PIER Nº	STATION	A W.B.	A E.B.	B W.B	B E.B.	C W.B.	C E.B.	D W.B.	D E.B.	E W.B.	E E.B.	F
***	26	1258+26.50	621.19	621.05	621.33	621.20	621.46	621.36	621.37	621.29	621.22	621.16	590.0

NOTES:

1. INDICATES DIRECTION OF 3 IN 1 BATTER.
2. THE PREFIX "15P", "16P", "17P", "19P", "20P", "21P" & "26P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 15, 16, 17, 19, 20, 21 AND 26.
3. * - INDICATES PIERS 15, 16 & 17
   ** - INDICATES PIERS 19, 20 & 21
   *** - INDICATES PIER 26 ONLY
4. FOR ADDITIONAL NOTES SEE SHEET 12/43.
5. ANCHOR BOLTS: THE ANCHOR BOLTS SHALL BE PRESET OR FORMED HOLES PROVIDED. DRILLING SHALL NOT BE ALLOWED

CALC. ____ DATE ____
CHKD. ____ DATE ____
OHIO F.H.W.A. REGION 5
216P 326

ERIE COUNTY
ERI-2-18.38

ALTERNATE-2

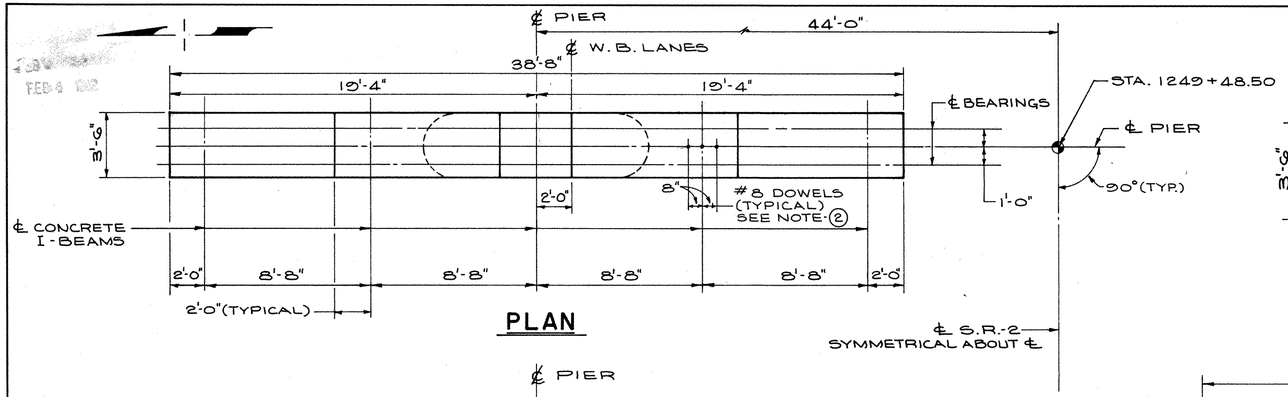
14/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

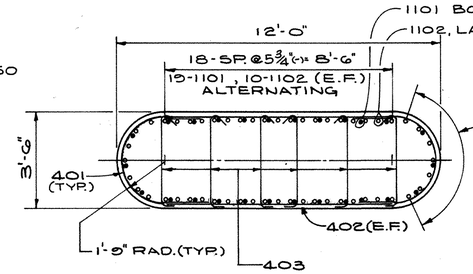
PIER Nº'S. 15, 16, 17, 19, 20, 21 & 26
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M. / I.M.B.	L.E.D.	11/4/85	

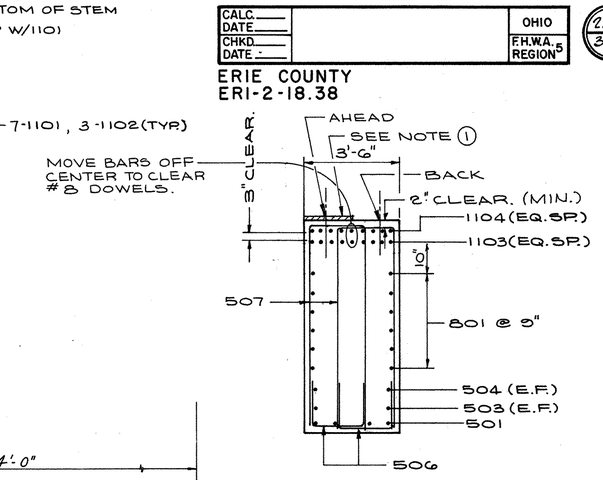
A-C-L form no. B-1



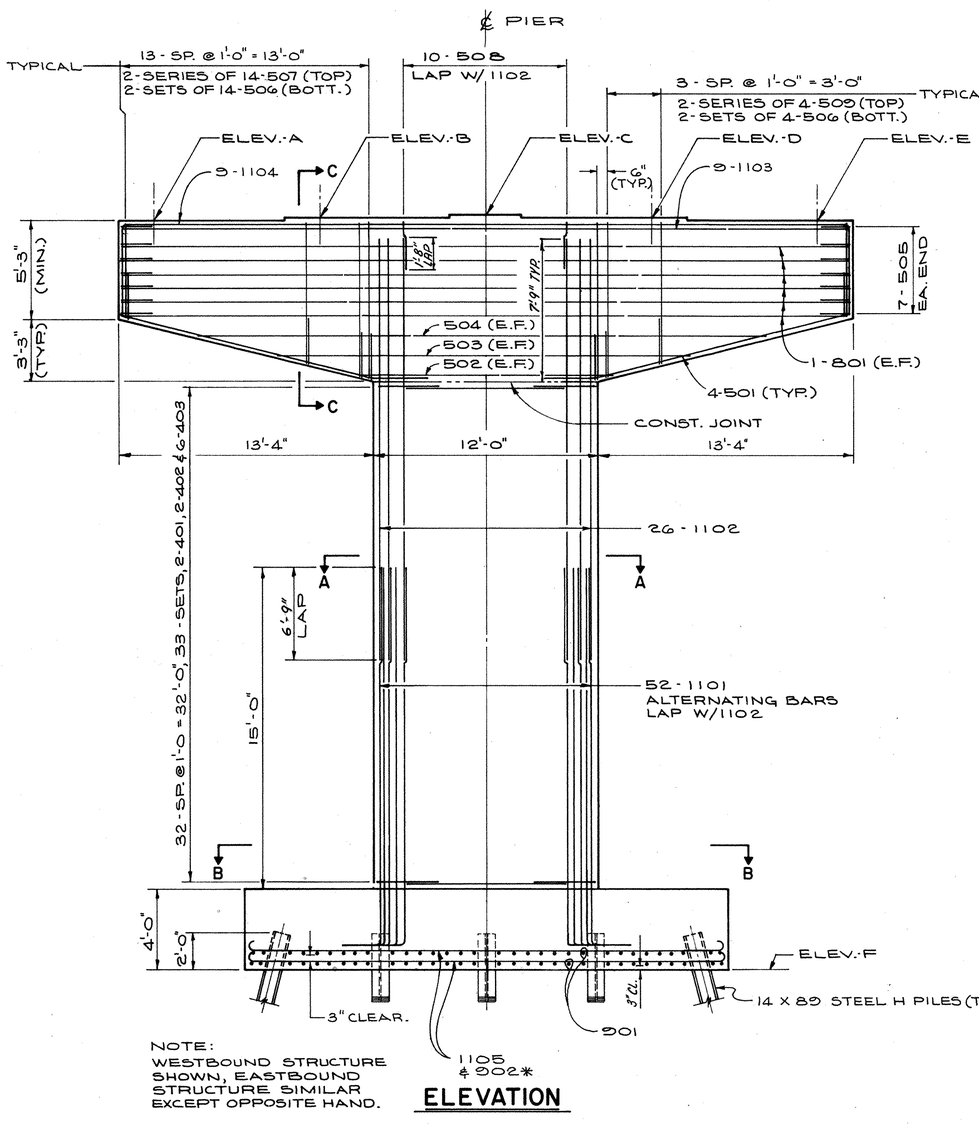
PLAN



SECTION A-A

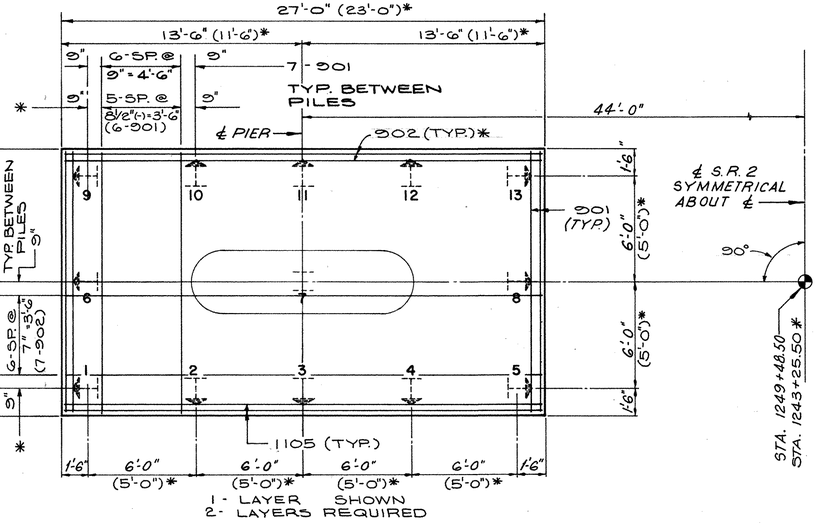


SECTION C-C



NOTE:
WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR EXCEPT OPPOSITE HAND.

ELEVATION



1 - LAYER SHOWN
2 - LAYERS REQUIRED

VIEW B-B

* INDICATES PIER Nº11, SHEET 13/43

TABLE OF ELEVATIONS											
PIER Nº	A		B		C		D		E		F
	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	BACK	AHEAD	
18	609.49	609.55	609.62	609.68	609.76	609.82	609.69	609.74	609.55	609.61	564.50

NOTES:

1. THE DIFFERENCE BETWEEN BACK AND AHEAD ELEVATIONS SHALL BE MADE UP BY EITHER SHIMMING OR FORMING AT THE CONTRACTORS OPTION.
2. #8 DOWEL BARS MAY BE CAST IN PLACE OR SET INTO FORMED HOLES. DRILLING SHALL NOT BE ALLOWED.
3. THE PREFIX "18P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIER-18.
4. ⟶ INDICATES DIRECTION OF 3 IN 1 BATTER.
5. FOR ADDITIONAL NOTES SEE SHEET 12/43.

CALC.		OHIO
DATE		F.H.W.A. 5
CHKD.		REGION
DATE		

2166
326

ERIE COUNTY
ERI-2-18.38

ALTERNATE-2 15/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

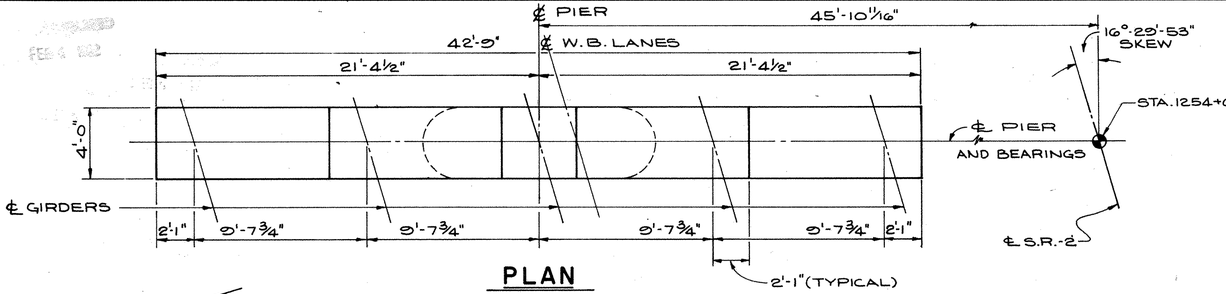
PIER Nº18

BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD

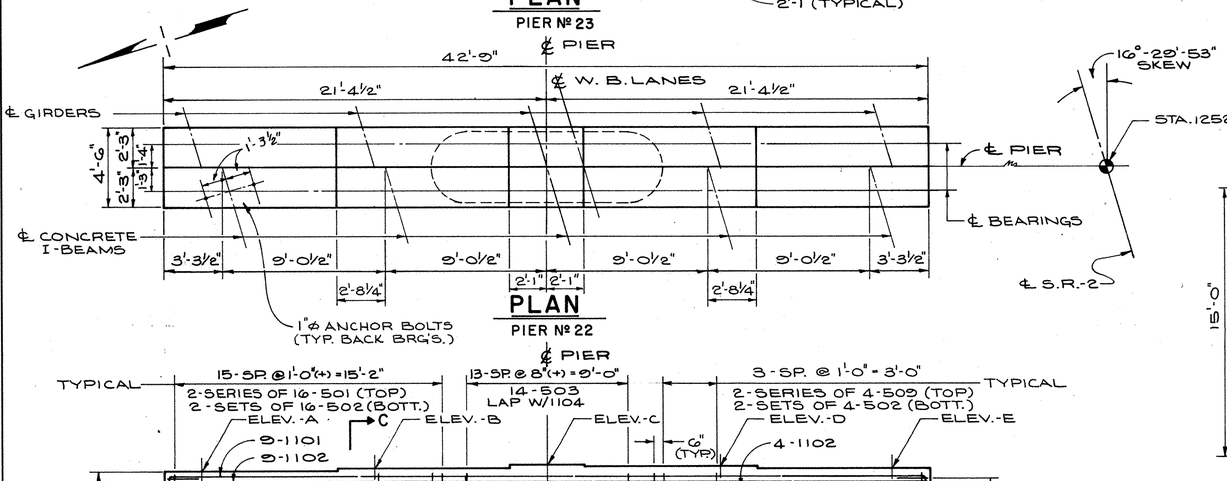
ERIE COUNTY ERI-2-18.38
STA. 1233+43.75 TO STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M. / I.M.B.	L.E.D.	11/4/85	

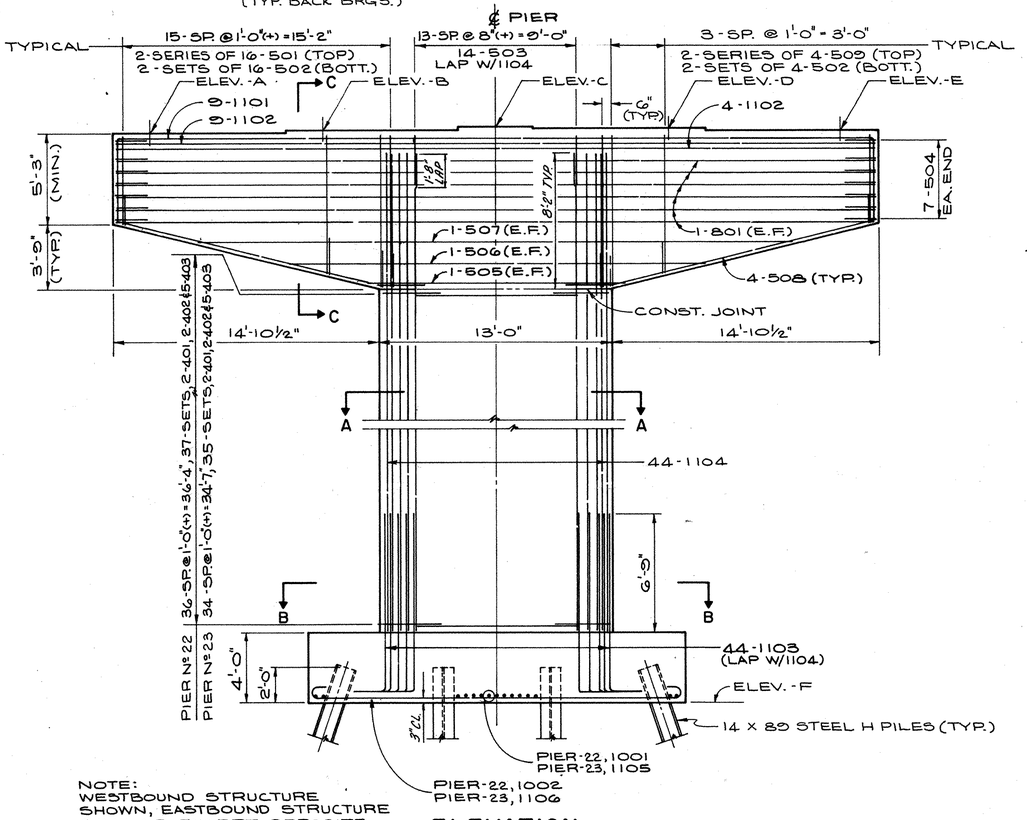
A-C-L form no. B-1



PLAN
PIER Nº 23

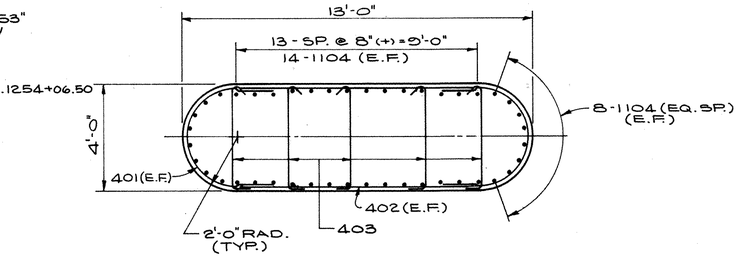


PLAN
PIER Nº 22

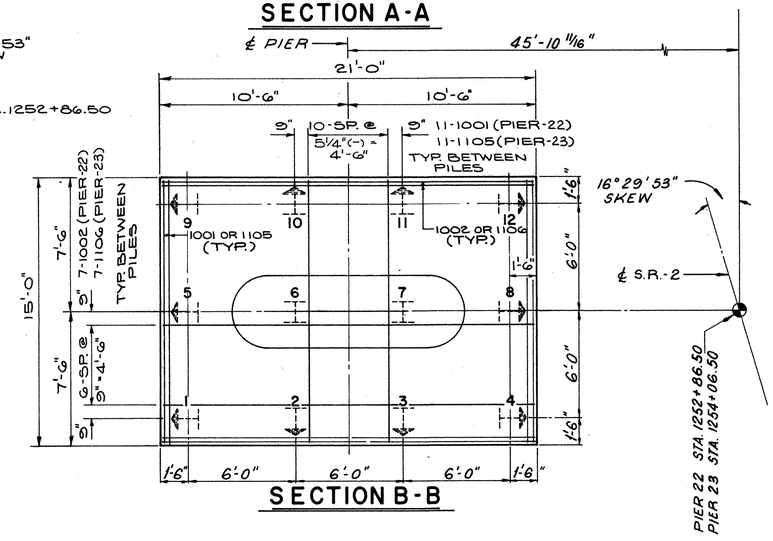


NOTE:
WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR EXCEPT OPPOSITE HAND.

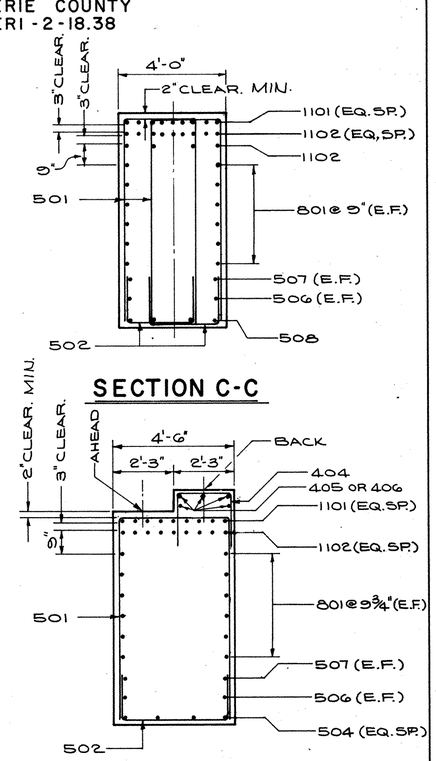
ELEVATION
PIER Nº 23
PIER Nº 22 SIMILAR EXCEPT CAP DETAIL, SEE ELEV.-"E"



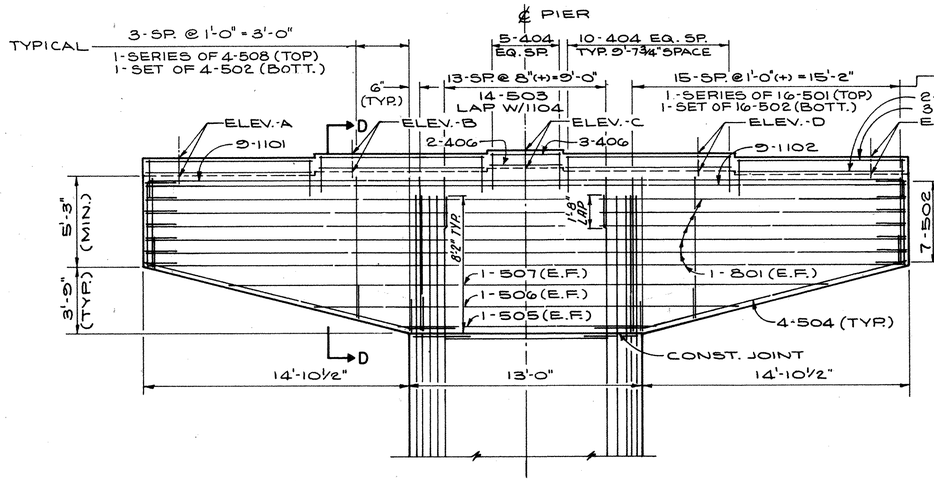
SECTION A-A



SECTION B-B



SECTION C-C



ELEVATION-E
PIER Nº 22 ONLY

TABLE OF ELEVATIONS											
PIER Nº	A		B		C		D		E		F
	W.B.	E.B.	W.B.	E.B	W.B.	E.B.	W.B.	E.B.	W.B.	E.B.	
22-BACK	617.50	616.88	617.59	617.07	617.67	617.24	617.60	617.21	617.40	617.13	565.5
22-AHEAD	615.93	615.22	616.02	615.42	616.12	615.62	615.98	615.59	615.75	615.50	
23	617.07	616.48	617.17	616.67	617.27	616.86	617.15	616.82	616.96	616.72	568.5

SECTION D-D

NOTES:
1. THE PREFIX "22P" & "23P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS AND PILES IN PIERS 22 AND 23 RESPECTIVELY.
2. ⇢ INDICATES DIRECTION OF 3 IN 1 BATTER
3. FOR ADDITIONAL NOTES SEE SHEETS 12/43 & 15/43

ANCHOR BOLTS: THE ANCHOR BOLTS SHALL BE PRESET OR FORMED HOLES PROVIDED. DRILLING SHALL NOT BE ALLOWED.

ALTERNATE-2

16/43

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

PIER Nº'S. 22 & 23
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD

ERIE COUNTY ERI-2-18.38
STA. 1233+43.75 TO STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M. I.M.B.	L.E.D.	11/4/85	

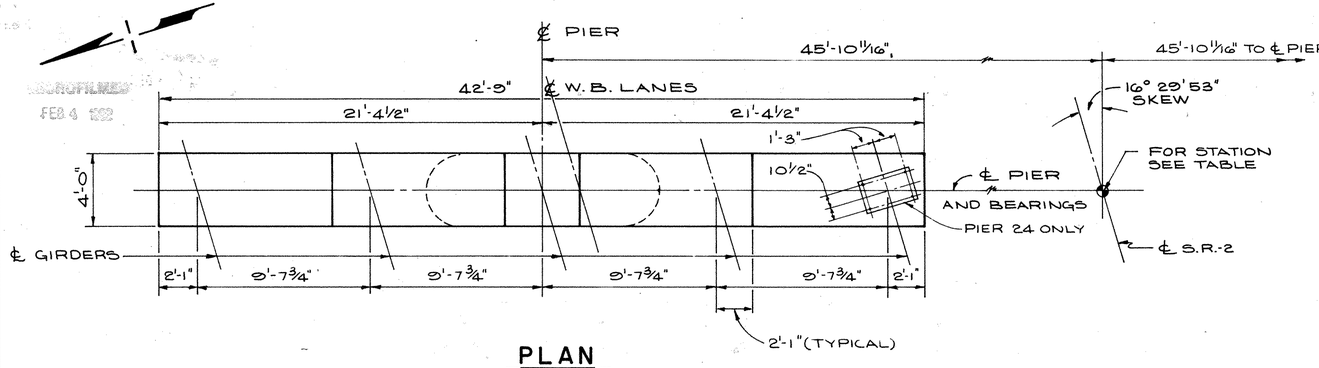
A-C-L form no. B-1

CALC.		OHIO
DATE		F.H.W.A. REGION 5
CHKD.		
DATE		

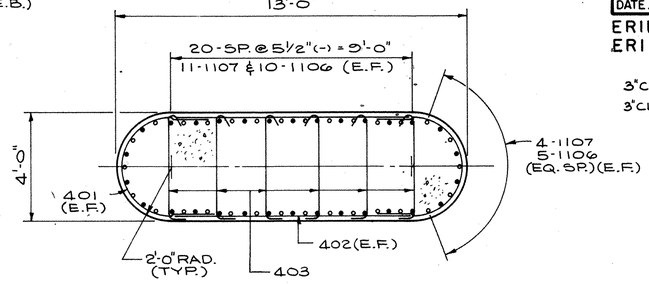
216J 326

ERIE COUNTY
ERI-2-18.38

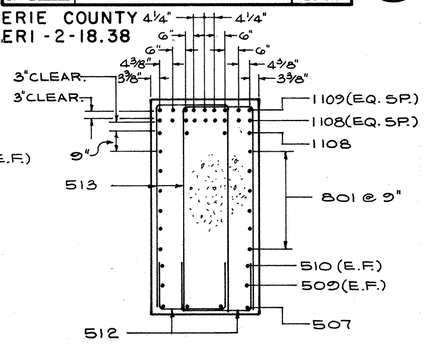
PLAN



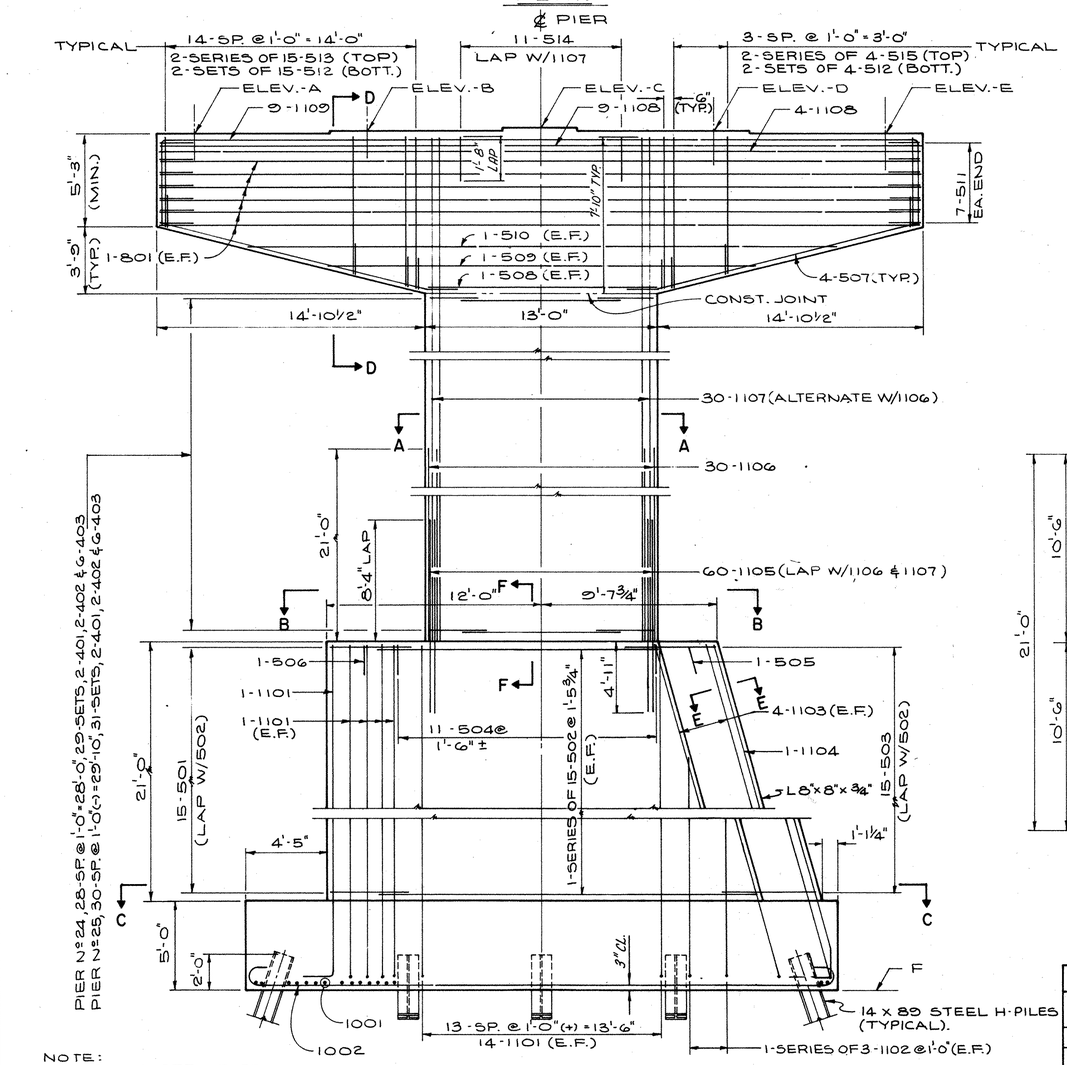
SECTION A-A



SECTION D-D

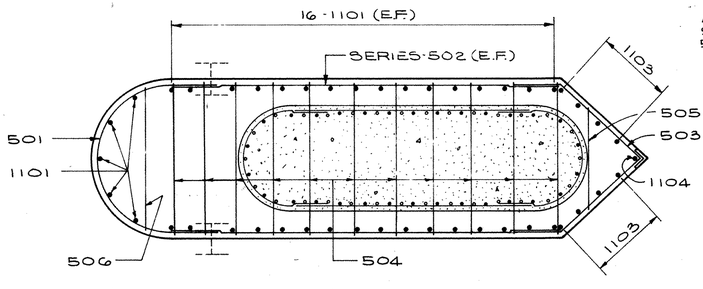


ELEVATION

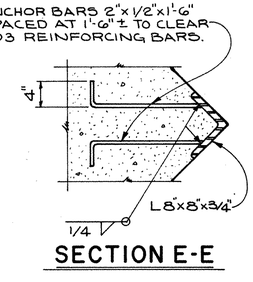


NOTE:
WESTBOUND STRUCTURE SHOWN, EASTBOUND STRUCTURE SIMILAR.

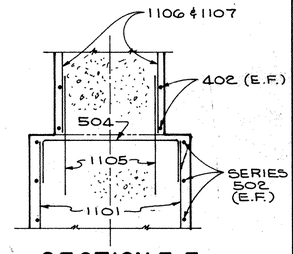
SECTION B-B



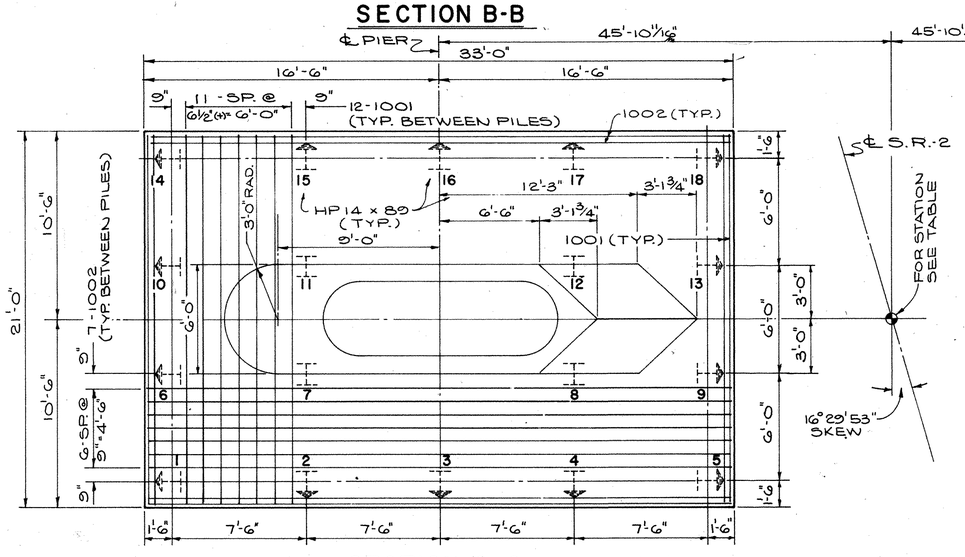
SECTION E-E



SECTION F-F



SECTION C-C



NOTES:

1. ANCHOR BOLTS: THE ANCHOR BOLTS SHALL BE PRESET OR FORMED HOLES PROVIDED. DRILLING SHALL NOT BE ALLOWED.
2. L 8"x 8"x 3/4" AND 2"x 1/2" ANCHOR BARS TO BE INCLUDED WITH ITEM 511, CLASS-C CONCRETE PIER WALLS, FOR PAYMENT.
3. → INDICATES DIRECTION OF 3 IN 1 BATTER.
4. THE PREFIX "24P" & "25P" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN PIERS 24 & 25 RESPECTIVELY.
5. FOR ADDITIONAL NOTES SEE SHEET 12/43.

TABLE OF ELEVATIONS

PIER Nº	STATION	A		B		C		D		E		F
		GIR.-1	GIR.-6	GIR.-2	GIR.-7	GIR.-3	GIR.-8	GIR.-4	GIR.-9	GIR.-5	GIR.-10	
24	1255+56.50	618.98	618.75	619.09	618.86	619.21	618.90	619.09	618.73	618.92	618.55	555.00
25	1257+06.50	620.43	620.31	620.56	620.43	620.68	620.49	620.58	620.33	620.42	620.16	555.00

FOR GIRDER NUMBERS SEE SHEET 21/43.

ALTERNATE-2

17/43

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

PIER Nºs. 24 & 25

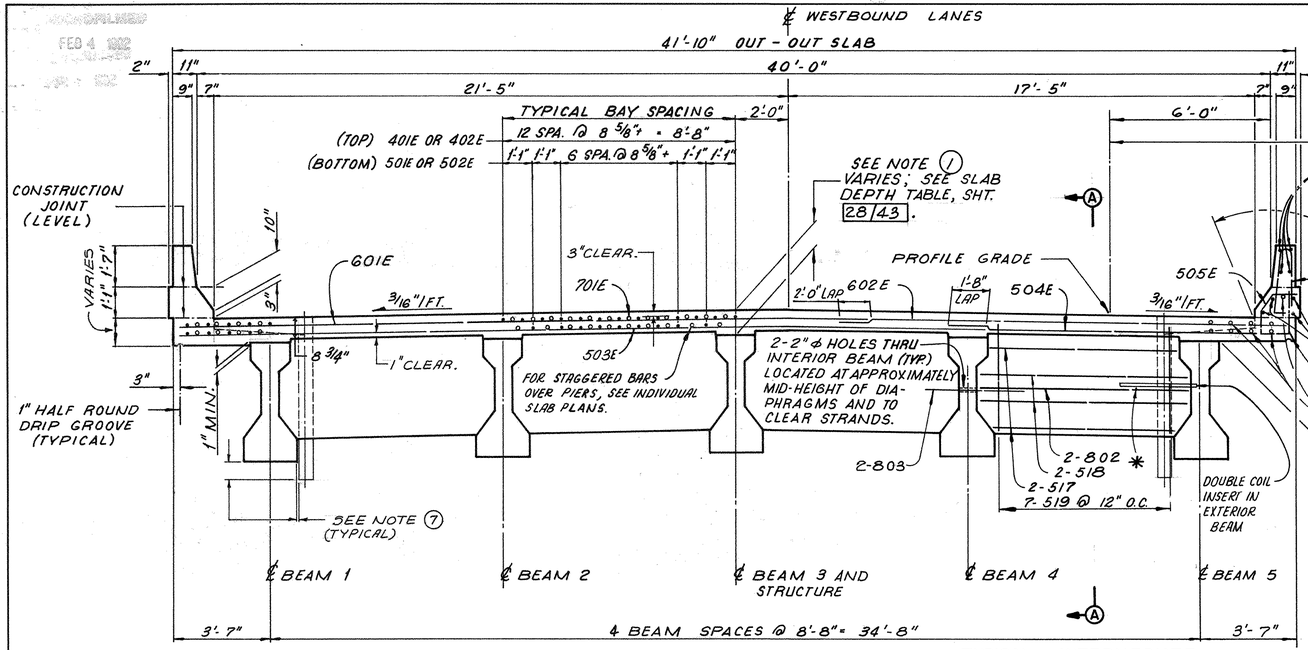
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	J.D.P.	K.L.M. / I.M.B.	L.E.D.	11/4/85	

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

216K 32G

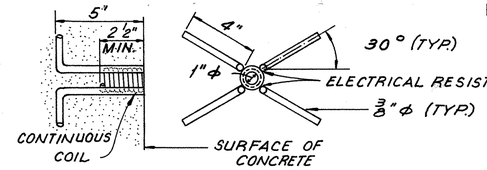
ERIE COUNTY
ERI-2-18.38



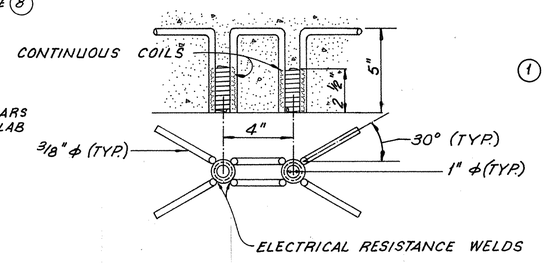
TYPICAL INTERMEDIATE DIAPHRAGM REINFORCING

TRANSVERSE SECTION

WESTBOUND LANES SHOWN, EASTBOUND LANES SIMILAR BUT OPPOSITE HAND



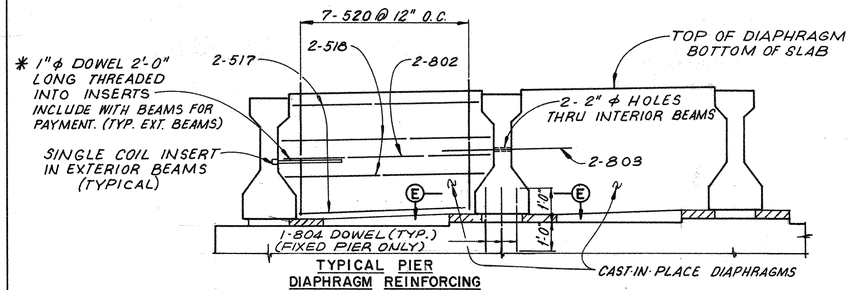
SINGLE COIL INSERT



DOUBLE COIL INSERT

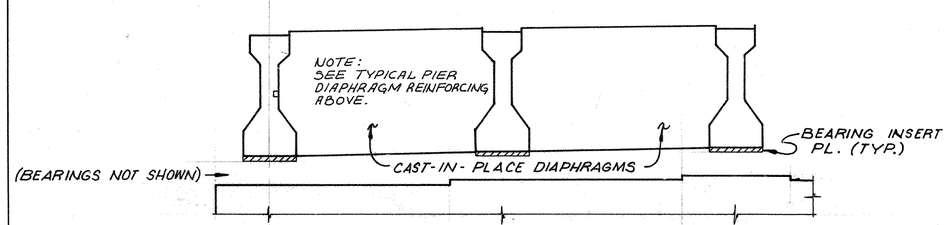
NOTES:

1. THIS IS THE NOMINAL DIMENSION. THE PAY QUANTITY OF THAT PORTION OF THE DECK CONCRETE OVER THE BEAMS SHALL BE BASED ON THE AVERAGE OF THIS DIMENSION AND THE DEPTH AT BEAM BEARINGS EVEN THOUGH DEVIATION FROM THIS AVERAGE MAY OCCUR BECAUSE THE TOP OF THE BEAM MAY NOT HAVE THE CAMBER ANTICIPATED IN THE DESIGN; I.E., "B", SHT. 28/43. THE CAMBER OF BEAMS SHALL BE MEASURED IN THE FIELD BEFORE THE DECK IS PLACED. THE ACTUAL DEPTH AT MID-SPAN SHALL BE THE NOMINAL DIMENSION PLUS OR MINUS THE DIFFERENCE BETWEEN ACTUAL AND ANTICIPATED CAMBER.
2. BAR MARKS FOR REINFORCING WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX 'E'.
3. FOR SCUPPER LOCATIONS SEE SHEETS 27/43, 28/43 & 29/43.
4. FOR FRAMING PLAN, SEE SHEET 20/43.
5. FOR SLAB PLAN, SEE SHEETS 27/43 & 28/43.
6. A PREFIX 'S' SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE.
7. SCUPPERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING SD-1-69 EXCEPT THAT SCUPPER PIPES SHALL EXTEND 8" BELOW BOTTOM OF THE BEAMS INSTEAD OF 2". PIPES SHALL CLEAR BEAM BOTTOM FLANGE BY 1". SCUPPERS SHALL BE SUPPORTED OFF DECK FORMS AS SHOWN IN DETAIL C STANDARD DRAWING SD-1-69, SHT. 3 OF 4.
8. ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION, REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURE.

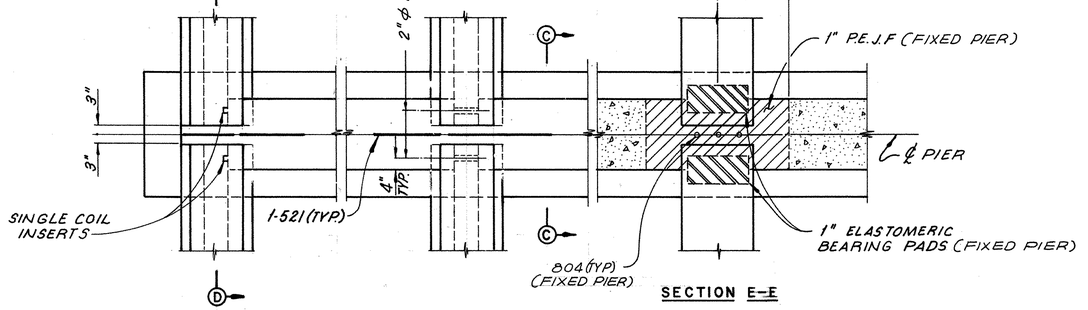


TYPICAL PIER DIAPHRAGM REINFORCING

PARTIAL ELEVATION OF DIAPHRAGMS AT FIXED PIERS

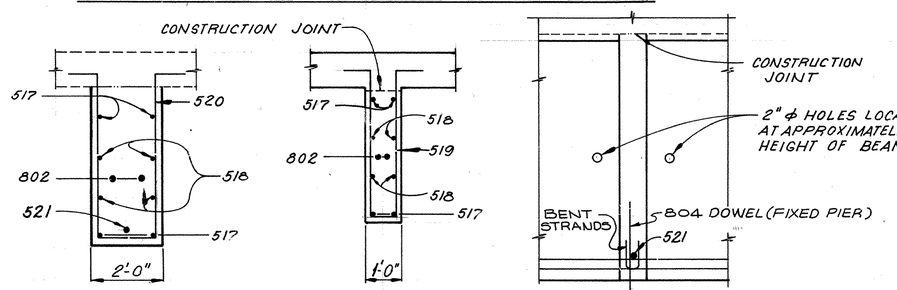


PARTIAL ELEVATION OF DIAPHRAGMS AT EXPANSION PIERS



SECTION E-E

PART PLAN OF DIAPHRAGMS AT PIERS



SECTION C-C | SECTION A-A | SECTION D-D

ALTERNATE - 2

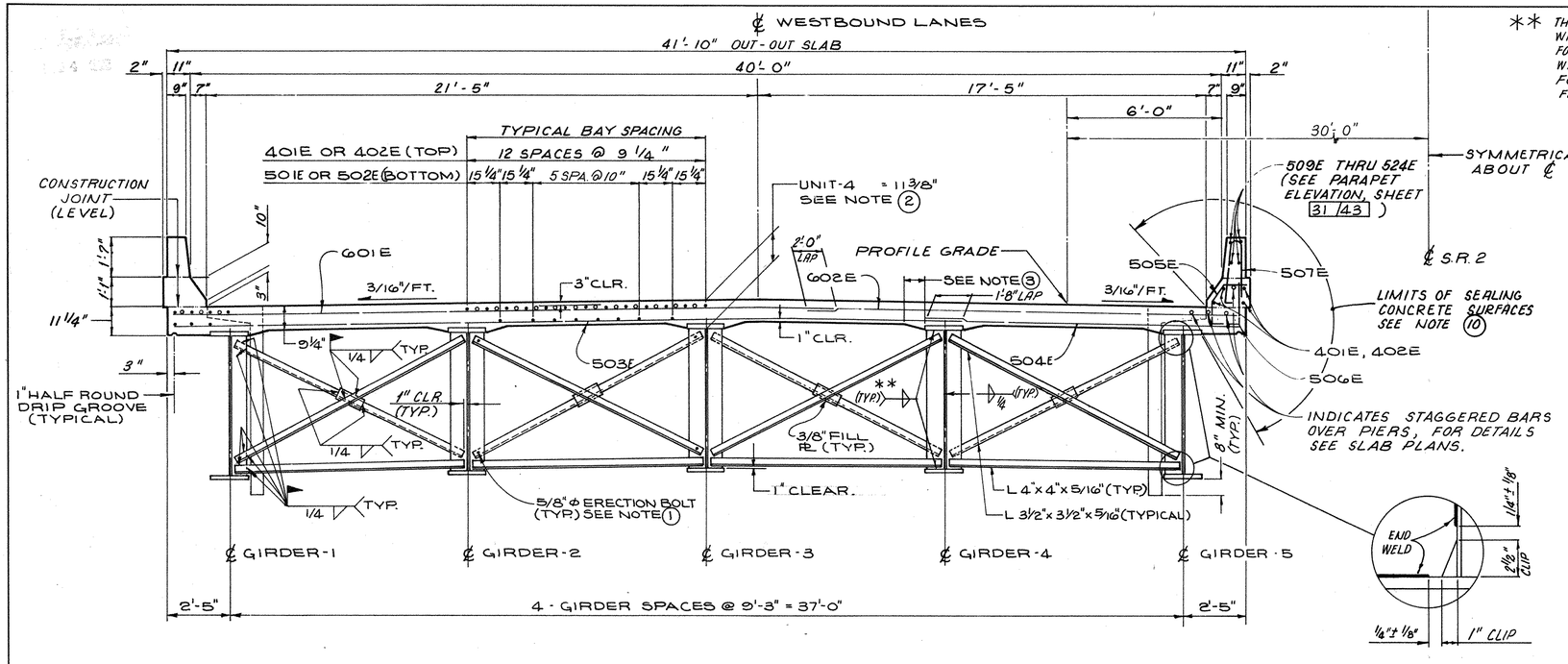
18/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

TRANSVERSE SECTION UNIT 1,2,3
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

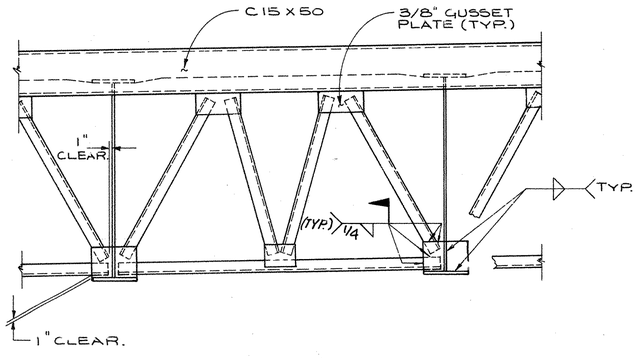
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	



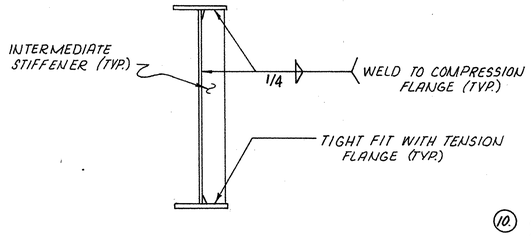
TRANSVERSE SECTION

** THESE WELDS APPLY ONLY AT STIFFENERS WHERE CROSSFRAMES ARE ATTACHED. FOR DETAILS OF WELDMENT OF STIFFENERS WITHOUT CROSSFRAMES, SEE DETAIL 'A' BELOW. FOR WELD SIZES NOT SHOWN, SEE FILLET WELD SIZE TABLE, SHEET 21/43.



TYPICAL END CROSSFRAME

FOR ADDITIONAL DETAILS, SEE STANDARD DRAWING SD-1-69, SHEET 1 OF 4. AND EXPANSION JOINT DETAILS, SHEETS 32/43 & 34/43.



DETAIL A

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

216L 326

ERIE COUNTY
ERI-2-18.38

NOTES:

1. HOLES FOR 5/8" ϕ ERECTION BOLTS SHALL BE PROVIDED IN THE CONNECTIONS OF CROSS FRAMES TO GIRDER STIFFENERS. PROVIDE 11/16" ϕ HOLES IN CROSS FRAME ANGLES AND 13/16" ϕ HOLES IN STIFFENERS. UNLESS REPLACED BY PERMANENT HIGH STRENGTH BOLTS, ERECTION BOLTS SHALL REMAIN IN PLACE. LOCK WASHERS SHALL BE FURNISHED FOR OTHER THAN FULLY TORQUED HIGH STRENGTH ERECTION BOLTS. BOLTS SHALL BE FURNISHED AS PART OF 513.

   IN LIEU OF ERECTION BOLTS AND AT THE OPTION OF THE CONTRACTOR, ALTERNATIVE MEANS OF TEMPORARY BRACING MAY BE USED SUBJECT TO THE APPROVAL OF THE DIRECTOR.

2. * - THIS IS THE DESIGN DIMENSION: THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER 511.18.

3. A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12", PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDTH.

4. BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX "E."

5. FOR SCUPPER LOCATIONS, SEE SLAB PLANS.

6. FOR FRAMING PLAN, SEE SHEET 21/43.

7. FOR SLAB PLAN, SEE SHEET 29/43.

8. SCUPPERS SHALL BE IN ACCORDANCE WITH STANDARD DRAWING SD-1-69 EXCEPT THAT SCUPPER PIPES SHALL EXTEND 8" BELOW THE BOTTOM OF THE BEAMS INSTEAD OF 2". SCUPPERS SHALL BE LENGTHENED IN ACCORDANCE WITH DETAIL 'A', STANDARD DWG. SD-1-69.

9. WHERE NOT SPECIFIED, FILLET WELD SIZES SHALL BE AS LISTED ON SHEET 21/43.

10. ITEM SPECIAL, SEALING OF CONCRETE SURFACES: A CONCRETE SEALER, EITHER SILANE OR AN EPOXY SEALER, SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON THE TRANSVERSE SECTION. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

ALTERNATE-2

19/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

TRANSVERSE SECTION UNIT-4

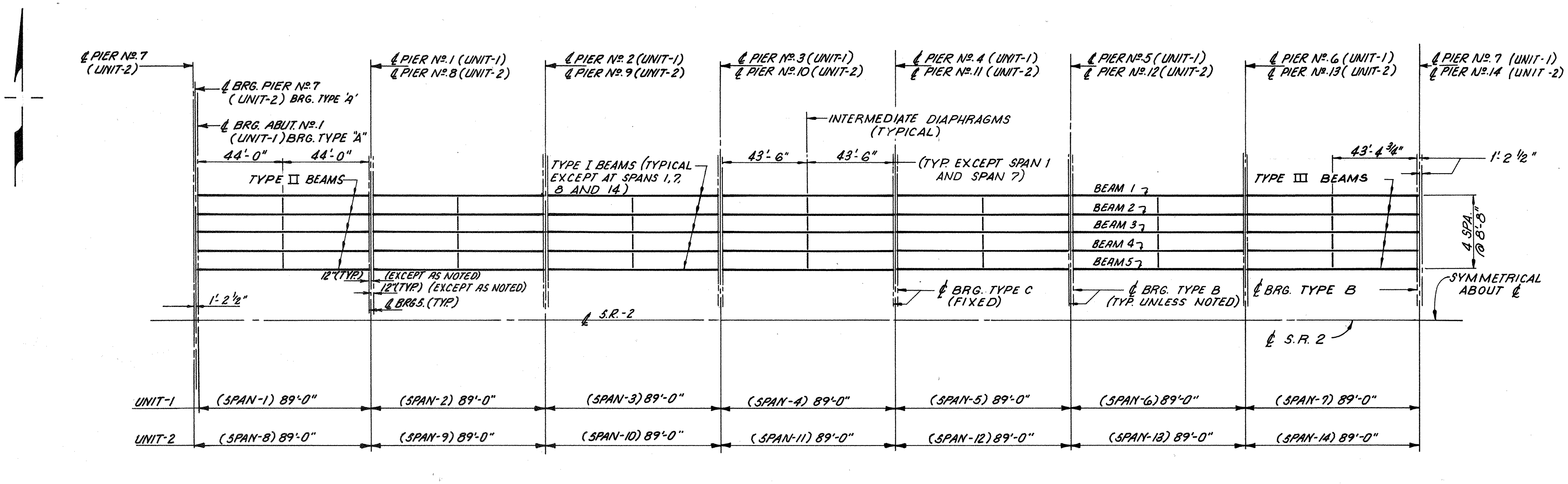
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

ERIE COUNTY — STA. 1233+43.75 TO
ERI-2-18.38 — STA. 1259+37.37

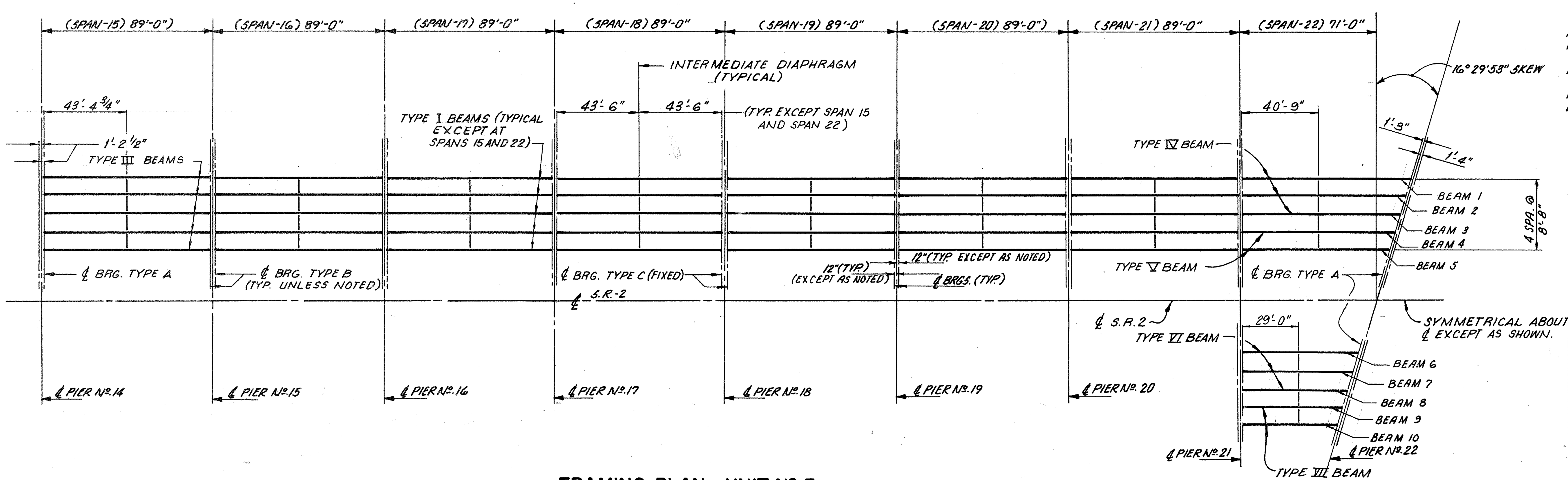
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

CALC.		OHIO	216M
DATE			326
CHKD.		F.H.W.A. REGION 5	
DATE			

ERIE COUNTY
ERI-2-18.38



FRAMING PLAN - UNITS No. 1 & 2



FRAMING PLAN - UNIT No. 3

NOTES:

FOR DETAILS OF PRESTRESSED CONCRETE BEAMS, SEE SHEETS 24/43 AND 25/43

FOR BEARING DETAILS, SEE SHEET 26/43

FOR TRANSVERSE SECTION AND DIAPHRAGM DETAILS, SEE SHEET 18/43.

ALTERNATE-2

20/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

FRAMING PLAN UNITS 1, 2 & 3
BRIDGE No. ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

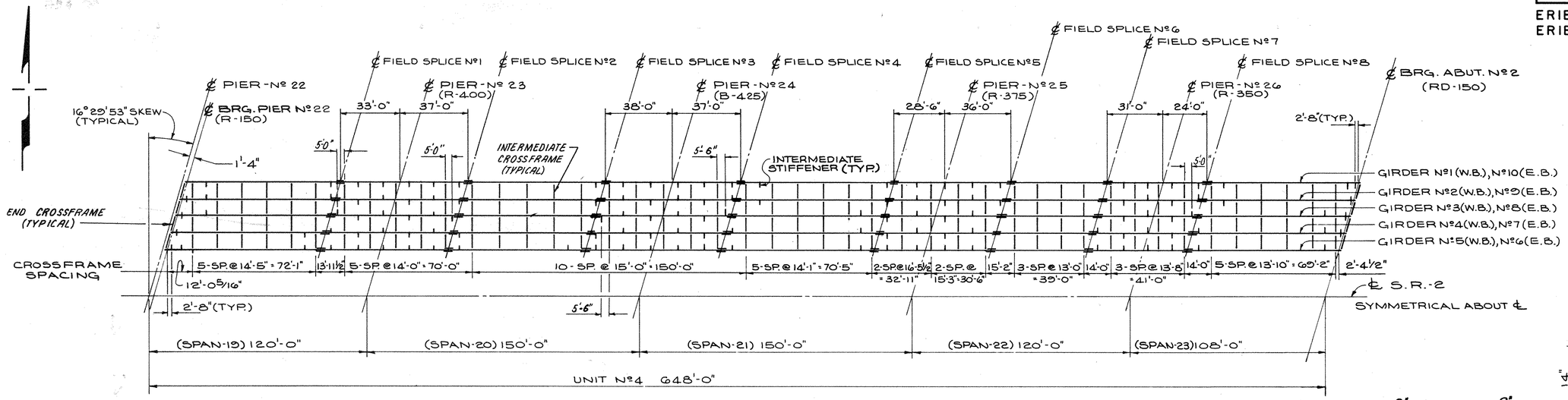
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	C.A.G.	K.L.M. / I.M.B.	L.E.D.	11/4/85	

A-C-L form no. B-1

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	

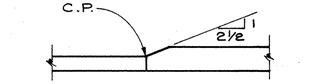
216N 326

ERIE COUNTY
ERIE-2-18.38



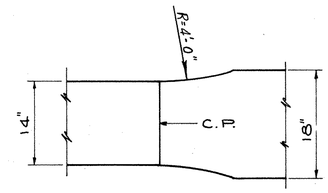
FRAMING PLAN

FILLET WELD SIZE	
THICKNESS OF THICKER PART JOINED	MINIMUM SIZE OF FILLET WELD
TO 3/4" INCLUSIVE	1/4"
OVER 3/4" TO 1 1/2"	5/16"
OVER 1 1/2" TO 2 1/4"	3/8"



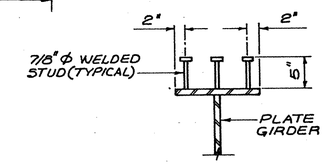
DETAIL "A"

FLANGE THICKNESS TRANSITION AT BUTT WELD

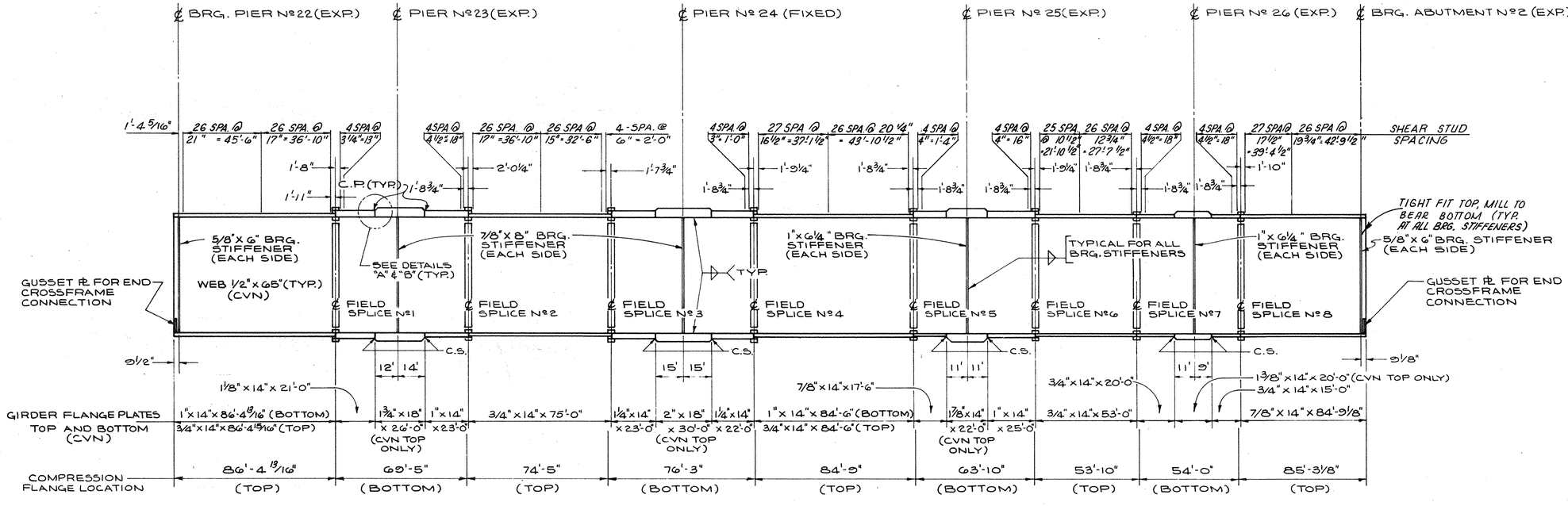


DETAIL "B"

FLANGE WIDTH TRANSITION AT BUTT WELD, EITHER SIDE OF PIERS 23 & 24.



SHEAR STUD DETAIL



GIRDER ELEVATION

NOTES:

1. FOR CAMBER AND DEFLECTION DIAGRAM, SEE SHEET 23/43.
2. FOR ADDITIONAL NOTES, SEE SHEET 10/43.
3. TRANSVERSE INTERMEDIATE STIFFENERS SHALL BE 3/8"x5" PLATES. THEY SHALL BE PLACED AT ALL CROSSFRAME LOCATIONS AND AT ADDITIONAL LOCATIONS AS SHOWN ON THE FRAMING PLAN. WHERE DIMENSIONS ARE NOT GIVEN, STIFFENERS SHALL BE SPACED MIDWAY BETWEEN CROSSFRAMES.
4. FOR FILLET WELD SIZES AND SHEAR STUD DETAIL, SEE THIS SHEET.
5. C.P. - INDICATES COMPLETE PENETRATION WELD.
6. C.S. - INDICATES BUTT WELD SUBJECT TO COMPRESSIVE STRESSES ONLY.

ALTERNATE - 2

21/43

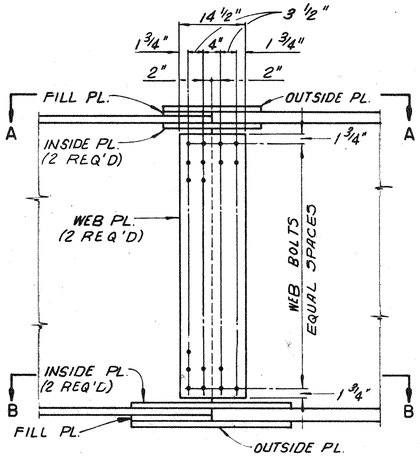
adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

FRAMING PLAN, UNIT Nº 4

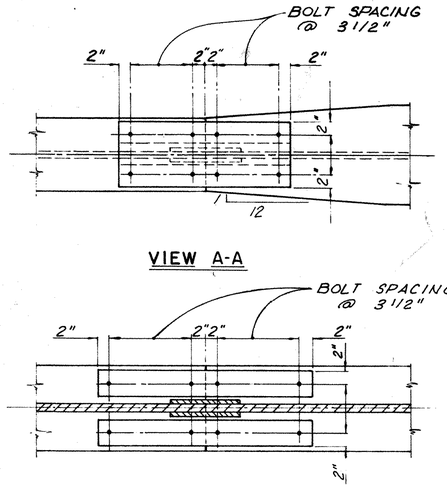
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD

ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
E.A.F.	J.D.P.	K.L.M.	L.E.D.	11/4/85	



ELEVATION



SECTION B-B

NOTE:
FLANGE WIDTH TRANSITION TYPICAL TOP AND BOTTOM FLANGES.

FHWA REGION	STATE	PROJECT
5	OHIO	

216F
326

ERIE COUNTY
ERI-2-18.38

GIRDER SPLICE DETAILS

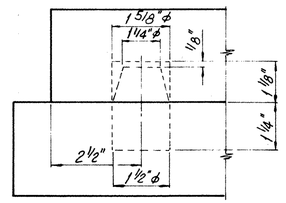
GIRDER SPLICE DATA

UNIT	LOCATION	WEB SPLICE		TOP FLANGE				BOTTOM FLANGE			
		WEB PLATE	BOLTS	OUTSIDE PLATE	INSIDE PLATE	FILL PLATE	BOLTS	OUTSIDE PLATE	INSIDE PLATE	FILL PLATE	BOLTS
4	GIRDERS 1 THRU 10 SPL. 1	5/16 x 14 1/2 x 5'-3"	72	1/2 x 13 x 3'-0"	1/2 x 6 x 3'-0"	3/8 x 13 x 1'-6"	20	1/2 x 13 x 3'-0"	1/2 x 6 x 3'-0"	3/8 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL 2 & 6	"	72	"	"	1/4 x 13 x 1'-6"	20	"	"	1/4 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL. 3	"	72	"	"	1/2 x 13 x 1'-6"	20	"	"	1/2 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL. 7	"	72	"	"	———	20	"	"	———	20
	GIRDERS 1 THRU 10 SPL. 4	"	72	"	"	1/2 x 13 x 1'-6"	20	"	"	1/4 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL 5	"	72	"	"	3/8 x 13 x 1'-6"	20	"	"	3/8 x 13 x 1'-6"	20
	GIRDERS 1 THRU 10 SPL. 8	"	72	"	"	———	20	"	"	3/8 x 13 x 1'-6"	20

TABLE OF SPECIAL ROCKERS AND BOLSTERS

BOLSTER NO.	ROCKER NO.	DIMENSIONS (inches) A	B	C	D	F	G	H	K	L	M	R	T	Y	WEIGHT EACH (lbs.) BOLSTER	ROCKER	MAX. LOAD
	R-325	4	21	4	3 1/2	3/4	13	20 3/8	15	29	26	13	3 1/4	1 15/16		1240	325,000
B-350	R-350	4	22	4	3 1/2	3/4	14	21 1/8	15	30	27	13 1/2	3 1/2	1 15/16	1170	1385	350,000
	R-375	4	23	4 1/2	3 3/4	7/8	14	22 3/8	16	31	28	14	3 3/4	1 15/16		1585	375,000
	R-400	4 1/2	24	4 1/2	4	7/8	14 1/2	23 1/8	17	33	30	14 1/2	4	2 3/16		1865	400,000
B-425		4 1/2	25	4 1/2	4	7/8	15	23 5/8	17	34	31	15	4	2 3/16	1660		425,000

FOR DETAILS, SEE STANDARD DRAWING RB-1-55.



SPECIAL DOWEL DETAIL
(FOR 'RD' ROCKERS ONLY)

NOTES:

1. ALL SPLICE PLATES EXCEPT FILL PLATES, SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS.
2. FOR LOCATIONS OF ROCKERS AND BOLSTERS SEE FRAMING PLANS.
3. SEE FRAMING PLANS FOR DETERMINATION OF THOSE SPLICES WHICH REQUIRE A FLANGE WIDTH TRANSITION.
4. HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER ASTM A-325, TYPE 3, UNLESS OTHERWISE NOTED.
5. BEARINGS: A36 STEEL, GALVANIZED, SHALL BE FURNISHED FOR BEARINGS, EXCEPT FOR UPPER PLATE ELEMENT OF BEARINGS. THIS A36 STEEL SHALL BE INCLUDED WITH THE A588 STEEL QUANTITY FOR PAYMENT.
6. A588 STEEL IS TO BE LEFT UNPAINTED. SEE CMS 513.221 FOR CLEANING REQUIREMENTS.
7. FOR ROADWAY GRADES EXCEEDING 2%, THE UPPER LOAD PLATE OF THE ROCKER OR BOLSTER SHALL BE BEVELED TO MATCH THE ROADWAY GRADE. DIMENSION "C" FROM THE ROCKER AND BOLSTER DETAILS SHALL APPLY AT THE CENTER OF THE PLATE. SEE STD. DWG. RB-1-55 AND THIS SHEET FOR DIMENSION "C".

ALTERNATE-2

22/43

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND OHIO 44114

GIRDER DETAILS

BRIDGE N° ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

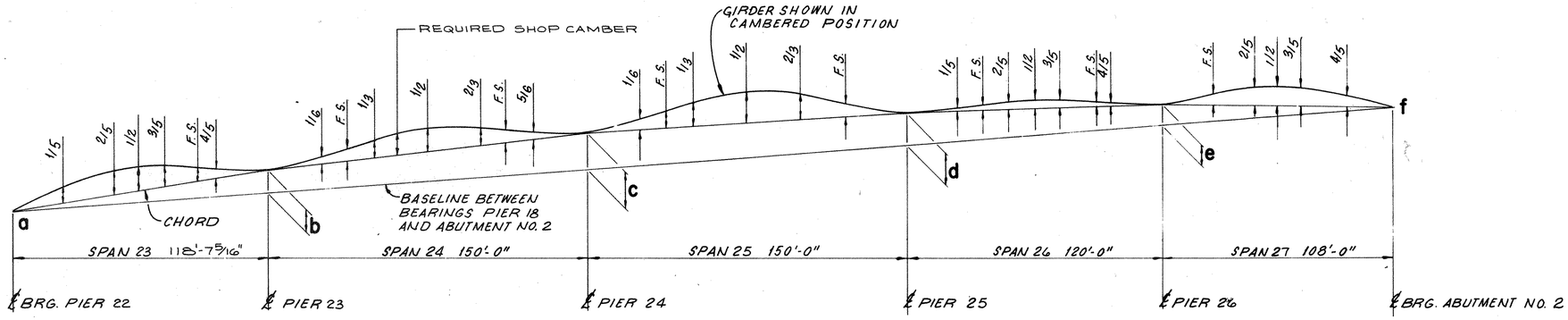
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M. E.A.F.	L.E.D.	11/4/85	

RECEIVED
FEB 4 1992

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

216R 32C

ERIE COUNTY
ERI-2-18.38



LAYOUT DIAGRAM

DEFLECTION AND CAMBER (UNIT 4) (INCHES)

	SPANS	SPAN 23								SPAN 24								SPAN 25								SPAN 26								SPAN 27					
	POINTS	a		1/5	2/5	1/2	3/5	F.S.	4/5	b		1/6	F.S.	1/3	1/2	2/3	F.S.	5/6	c		1/6	F.S.	1/3	1/2	2/3	F.S.	d		1/5	F.S.	2/5	1/2	3/5	F.S.	4/5	e		F.S.	2/5	1/2	3/5	4/5	f
GIRDERS 2 THRU 4 & 7 THRU 9	DEFLECTION DUE TO WEIGHT OF STEEL			1/4	3/8	5/16	5/16	3/16	1/8			1/16	1/8	3/16	1/4	3/16	1/8	1/16			1/8	3/16	5/16	7/16	3/8	3/16			0	0	0	0	0	0	0			1/8	1/4	1/4	1/4	3 1/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD			1 5/16	1 7/8	1 3/4	1 7/16	7/8	1/2			3/8	3/4	1 1/8	1 9/16	1 1/16	11/16	5/16			11/16	1 3/16	1 11/16	2 3/8	2	1 1/8			-1/8	0	3/16	1/4	1/4	1/16	0			3/4	1 7/16	1 11/16	1 11/16	1 1/8	
	ADJUSTMENT FOR VERTICAL CURVE			3/8	9/16	5/8	9/16	1/2	3/8			1/2	11/16	7/8	15/16	7/8	3/4	1/2			1/2	11/16	7/8	15/16	13/16	9/16			3/8	1/2	9/16	5/8	9/16	7/16	3/8			3/8	1/2	1/2	1/2	5/16	
	REQUIRED SHOP CAMBER			1 15/16	2 13/16	2 11/16	2 5/16	1 9/16	1			15/16	1 9/16	2 3/16	2 3/4	2 1/8	1 9/16	7/8			1 5/16	2 1/16	2 7/8	3 3/4	3 3/16	1 7/8			1/4	1/2	3/4	7/8	13/16	1/2	3/8			1 1/4	2 3/16	2 7/16	2 7/16	1 5/8	
	ORDINATE BETWEEN CHORD AND BASELINE	0								10 5/8"									1.5 3/16								1.4 3/16								9 3/8							0
GIRDERS 1, 5, 6 & 10	DEFLECTION DUE TO WEIGHT OF STEEL			1/4	3/8	5/16	5/16	3/16	1/8			1/16	1/8	3/16	1/4	3/16	1/8	1/16			1/8	3/16	5/16	7/16	3/8	3/16			0	0	0	0	0	0	0			1/8	1/4	1/4	1/4	3/16	
	DEFLECTION DUE TO REMAINING DEAD LOAD			1 1/16	1 1/2	1 7/16	1 3/16	11/16	7/16			5/16	5/8	15/16	1 5/16	7/8	9/16	1/4			9/16	1	1 3/8	1 15/16	1 5/8	7/8			-1/8	0	3/16	3/16	3/16	1/16	0			5/8	1 3/16	1 3/8	1 3/8	15/16	
	ADJUSTMENT FOR VERTICAL CURVE			3/8	9/16	5/8	9/16	1/2	3/8			1/2	11/16	7/8	15/16	7/8	3/4	1/2			1/2	11/16	7/8	15/16	13/16	5/8			3/8	1/2	9/16	5/8	5/8	7/16	3/8			5/16	7/16	1/2	1/2	5/16	
	REQUIRED SHOP CAMBER			1 11/16	2 7/16	2 3/8	2 1/16	1 3/8	15/16			7/8	1 7/16	2	2 1/2	1 15/16	1 7/16	13/16			1 3/16	1 7/8	2 9/16	3 5/16	2 13/16	1 11/16			1/4	1/2	3/4	13/16	13/16	1/2	3/8			1 1/16	1 7/8	2 1/8	2 1/8	1 7/16	
	ORDINATE BETWEEN CHORD AND BASELINE	0								10 5/8"									1.5 3/16								1.4 3/16								9 7/8							0

NOTES

NEGATIVE VALUES OF CAMBER INDICATE THE DIMENSION IS BELOW THE CHORD BETWEEN ADJACENT BEARINGS.

ALTERNATE-2

23/43

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44130

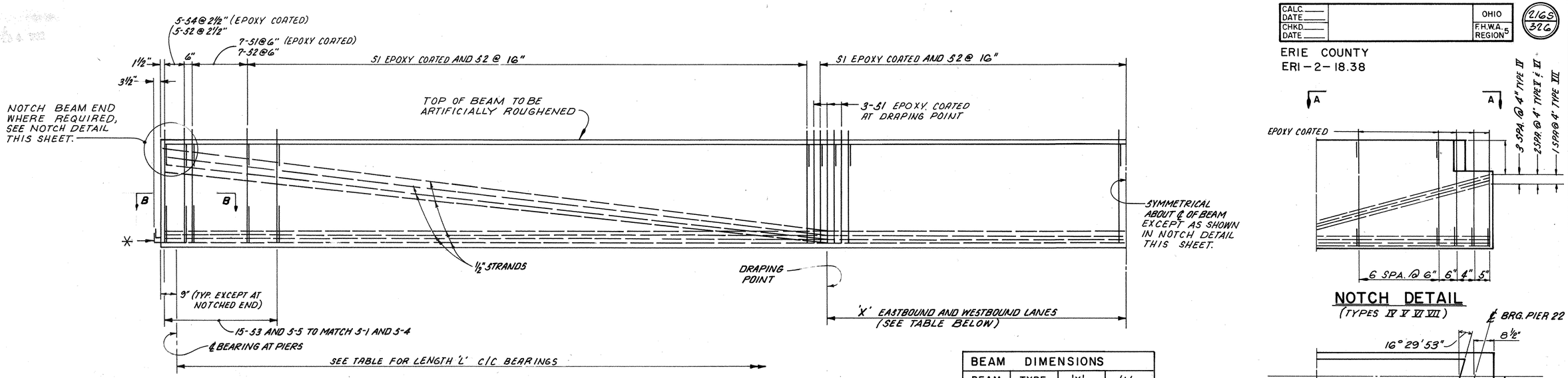
DEFL. AND CAMBER(UNIT-4)
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M. / E.A.F.	L.E.D.	11/4/85	

CALC.		OHIO
DATE		F.H.W.A.
CHKD.		REGION 5
DATE		

215
326

ERIE COUNTY
ERI-2-18.38

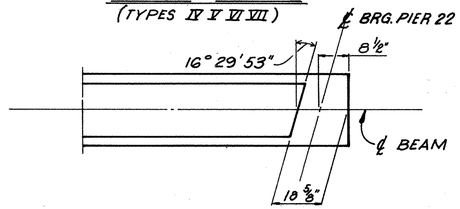


BEAM ELEVATION
(TYPE IV THRU VIII)

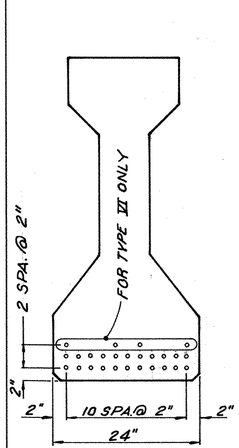
BEAM DIMENSIONS			
BEAM	TYPE	'X'	'L'
1	IV	13'-0"	86'-10 3/8"
2	IV	12'-6"	84'-3 1/2"
3	IV	12'-3"	81'-8 3/4"
4	V	11'-9"	79'-1 7/8"
5	V	11'-6"	76'-7 7/8
6	VI	9'-0"	60'-9 5/8"
7	VI	8'-9"	58'-2 3/4"
8	VI	8'-6"	55'-8"
9	VII	8'-0"	53'-1 1/8"
10	VII	7'-6"	50'-6 3/8"

NOTE: ALL SHEAR CONNECTORS ARE EPOXY COATED AS SHOWN BELOW

NOTCH DETAIL
(TYPES IV V VI VII)



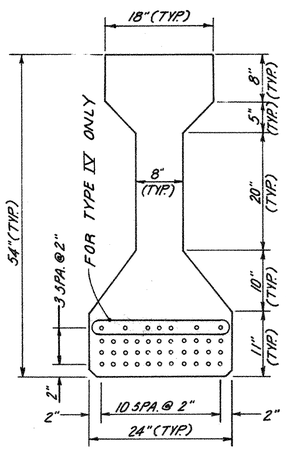
VIEW A-A



TYPICAL STRAND PATTERN AT MIDPOINT OF BEAM

TYPE VI - 26 STRANDS TOTAL
8 STRANDS DRAPED

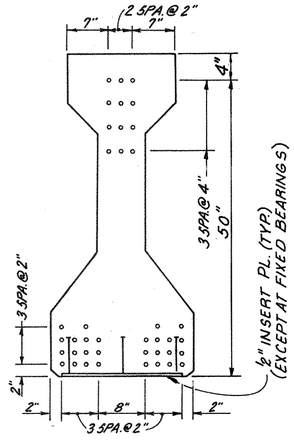
TYPE VII - 22 STRANDS TOTAL
6 STRANDS DRAPED



TYPICAL STRAND PATTERN AT MIDPOINT OF BEAM

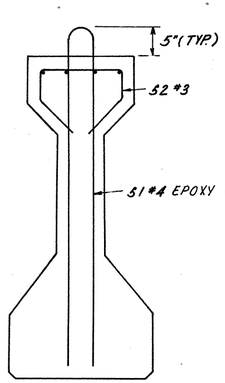
TYPE IV - 40 STRANDS TOTAL
12 STRANDS DRAPED

TYPE V - 33 STRANDS TOTAL
9 STRANDS DRAPED

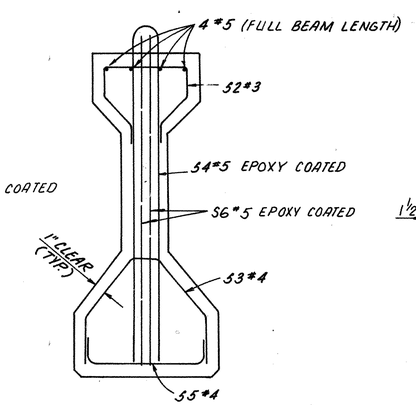


TYPICAL STRAND PATTERN AT END OF BEAM

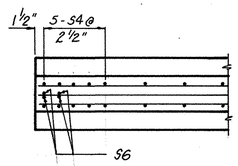
FOR LOCATION OF DRAPED STRANDS AT END OF NOTCHED BEAMS, SEE DETAIL THIS SHEET.



MILD STEEL REINFORCEMENT
(TYPICAL)



MILD STEEL REINFORCEMENT AT END OF BEAM
(TYPICAL)



SECTION B-B

NOTES:

* CUT 10 STRANDS IN 2 BOTTOM ROWS WITH AN 18" PROJECTION, EXCEPT AT NOTCHED END OF TYPE V TO VII BEAMS. SHOP BEND TO A 1" RADIUS STAGGER STRANDS IN ENDS OF ADJACENT BEAMS TO AVOID INTERFERENCE.

FOR LIFTING INSERT DETAIL, SEE SHEET 25/43

ALTERNATE - 2

24/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

SUPERSTRUCTURE DETAILS PRESTRESSED BEAMS

BRIDGE Nº. ERI-2-1911 L/R
S.R.2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

ERIE COUNTY
ERI-2-18.38

STA. 1233+43.75 TO
STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	C.A.G.	I.M.B. / K.L.M.	L.E.D.	11/4/85	

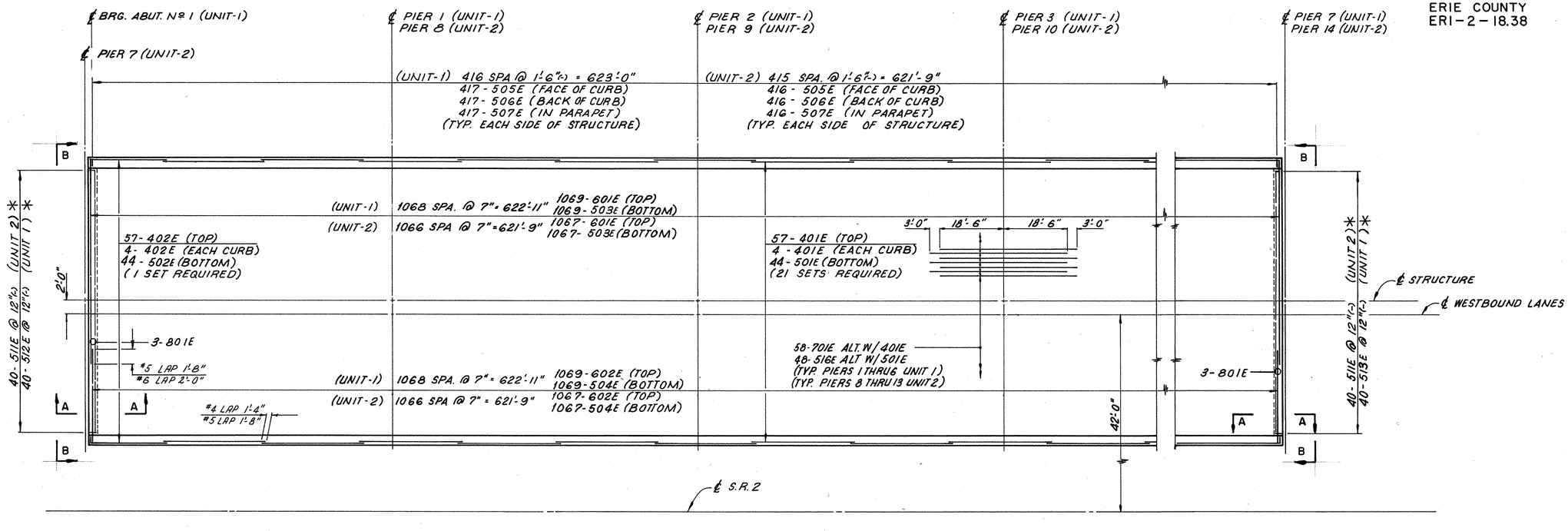
A-C-L form no. B-1


OHIO
F.H.W.A. REGION 5
216T / 326
ERIE COUNTY
ERI-2-18.38
5-S4 @ 2½" EPOXY COATED
5-S2 @ 2½"
7-S1 @ 6" EPOXY COATED
7-S2 @ 6"
S1 EPOXY COATED AND S2 @ 16"
S1 EPOXY COATED AND S2 @ 16"
NOTCH BEAM END WHERE REQUIRED, SEE NOTCH DETAIL THIS SHEET.
TOP OF BEAM TO BE ARTIFICIALLY ROUGHENED
3-S1 EPOXY COATED AT DRAPING POINT
SYMMETRICAL ABOUT ℄ OF BEAM EXCEPT AS SHOWN IN NOTCH DETAIL THIS SHEET.
½" STRANDS
DRAPING POINT
9" (TYP. EXCEPT AT NOTCHED END)
15-S3 AND S-5 TO MATCH S-1 AND S-4
℄ BEARING AT PIERS
SEE FRAMING PLANS FOR LENGTH C/C BEARINGS
13'-3" EASTBOUND AND WESTBOUND LANES
BEAM ELEVATION
TYPE I SHOWN
TYPES II AND III SIMILAR EXCEPT AS SHOWN IN NOTCH DETAIL FOR ABUTMENT 1, PIER 7 AND PIER 14
NOTE: ALL SHEAR CONNECTORS ARE EPOXY COATED AS SHOWN BELOW
℄ BRG.
℄ BEAM AND PAD
TYPE II 10¼"
TYPE III 8½"
NOTCH DETAIL
(FOR TYPES II & III)
TYPE II
TYPE III
SECTION A-A
SECTION B-B
L 6×4
SECTION E-E
18" (TYP.)
TYPICAL STRAND PATTERN AT MIDPOINT OF BEAM
TYPES I, II AND III
TYPICAL STRAND PATTERN AT END OF BEAM
TYPES I, II AND III
(NOTCHED END SIMILAR EXCEPT AS SHOWN IN NOTCH DETAIL)
4 #5, FULL BEAM LENGTH
S2 #3
S1 #4 EPOXY COATED
S4 #5 EPOXY COATED
S6 #5 EPOXY COATED
S3 #4
S5 #4
MILD STEEL REINFORCEMENT
(TYPICAL)
MILD STEEL REINFORCEMENT AT END OF BEAM
(TYPICAL)
1" DIA. THIN WALL CONDUIT
CUT OFF CLOSE TO TOP OF BEAM AFTER ERECTION.
TWO ½" DIA. PRESTRESS STRANDS PER INSERT
STRANDS TO BE SEPARATED
NOTE: LIFTING INSERTS OF THE CONTRACTORS DESIGN MAY BE USED IF APPROVED BY THE DIRECTOR
POSITION OF LIFTING INSERTS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR REINFORCING STEEL)
BEAM LIFTING INSERT
* CUT 10 STRANDS IN 2 BOTTOM ROWS WITH AN 18" PROJECTION, EXCEPT AT NOTCHED END OF TYPES II & III BEAMS. SHOP BEND TO A 1' RADIUS STAGGER STRANDS IN ENDS OF ADJACENT BEAMS TO AVOID INTERFERENCE.
ALTERNATE-2
25/43
adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131
SUPERSTRUCTURE DETAILS
PRESTRESSED BEAMS
BRIDGE No. ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY
ERI-2-18.38
STA. 1233+43.75 TO
STA. 1259+37.37
DESIGNED J.M.B.
DRAWN C.A.G.
CHECKED I.M.B. K.L.M.
REVIEWED L.E.D.
DATE 11/4/85
A.C.L. form no. B-1

CALC.		OHIO
DATE		F.H.W.A. REGION 5
CHKD.		
DATE		

216V
326

ERIE COUNTY
ERI-2-18.38

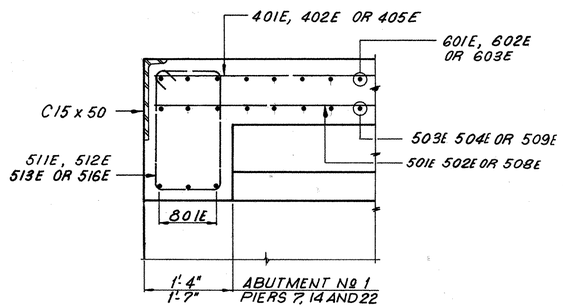


DECK SLAB PLAN, UNITS 1&2

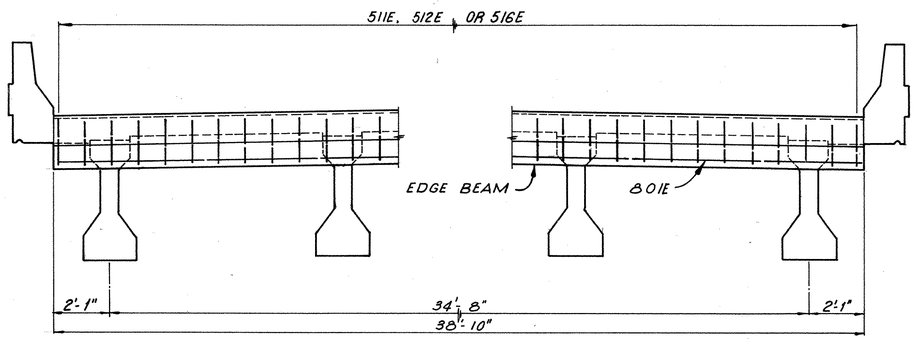
WESTBOUND STRUCTURE SHOWN
EASTBOUND STRUCTURE SIMILAR

SCUPPER LOCATION TABLE	
STA. 1233+51.00	STA. 1239+80.00
STA 1233+56.00	STA. 1239+85.00
STA. 1235+51.00	STA. 1241+74.00
STA. 1235+56.00	STA. 1241+79.00
STA. 1237+58.00	STA. 1243+81.00
STA. 1237+63.00	STA. 1243+86.00

A SCUPPER SHALL BE PLACED IN EACH GUTTER AT EACH OF THE ABOVE STATIONS IN EASTBOUND AND WESTBOUND STRUCTURES



SECTION A-A



PARTIAL VIEW B-B

NOTES:

FOR EXPANSION JOINT DETAILS, SEE SHEETS 32/43 THRU 33/43.

FOR REINFORCING SCHEDULE, SEE SHEET 41/43 & 42/43.

FOR TRANSVERSE SECTION, SEE SHEET 18/43

FOR SLAB DEPTH AND CAMBER TABLE, SEE SHEET 28/43

FOR PARAPET ELEVATION, SEE SHEET 31/43

BAR MARKS FOR REINFORCING STEEL WHICH ARE TOBE EPOXY COATED INCLUDE A LETTER SUFFIX -E.

FOR ADDITIONAL NOTES, SEE SHEET 29/43.

* SPACE THESE BARS TO MISS ALL PLATES AND SUPPORT BAR BOXES.

ALTERNATE-2

27/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

DECK SLAB PLAN, UNITS-1&2
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD

ERIE COUNTY — STA. 1233+43.75 TO
ERI-2-18.38 — STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

A-C-L form no. B-1

CALC.		OHIO	21GW / 326
DATE			
CHKD.		F.H.W.A. REGION 5	
DATE			

ERIE COUNTY
ERI-2-18.38

DECK SLAB PLAN

WESTBOUND STRUCTURE SHOWN
EASTBOUND STRUCTURE SIMILAR
EXCEPT AS SHOWN

SCUPPER LOCATION TABLE	
STA. 1246+03	
STA. 1246+08	
STA. 1246+13	*
STA. 1248+21	
STA. 1248+26	
STA. 1250+52	
STA. 1250+57	

NOTE: A SCUPPER SHALL BE PLACED IN EACH GUTTER FOR EASTBOUND AND WESTBOUND STRUCTURES AT EACH OF THE ABOVE STATIONS, EXCEPT AS DENOTED BY ASTERISK *

* DENOTES SCUPPER PLACED ON NORTH GUTTER OF W.B. STRUCTURE AND SOUTH GUTTER OF E.B. STRUCTURE.

SLAB DEPTH & CAMBER TABLE

SPAN	BEAM	A	B	C
1-6	1-10	3 5/8"	11 3/8"	9 1/4"
7	1-10		11 13/16"	
8-12	1-10		11 13/16"	
13	1-10		11 13/16"	
14-17	1-10		11 3/8"	
18	1-10		11 5/16"	
19-21	1-10	3 5/8"	11 1/16"	
22	1	3 5/8"	11 3/16"	
	2	3 7/16"	11 3/16"	
	3	3 3/8"	11 1/4"	
	4	2 11/16"	10 11/16"	
	5	2 11/16"	10 7/8	
	6	1 3/4"	10 1/2"	
	7	1 11/16	10 1/2"	
	8	1 5/8"	10 1/2"	
	9	1 3/8"	10 5/16"	
	10	1 5/16"	10 5/16"	9 1/4"

A = ANTICIPATED TOTAL CAMBER IN BEAM

B = SLAB DEPTH AT BEAM BEARINGS (TOP OF SLAB TO TOP OF BEAM)

C = SLAB DEPTH AT MIDSPAN.

NOTES:

FOR SECTION A-A, SEE SHEET 27/43.

FOR ADDITIONAL NOTES, SEE SHEET 27/43.

FOR VIEW B-B, SEE SHEET 27/43.

ALTERNATE-2 | 28/43

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CONSULTING ENGINEERS CLEVELAND, OHIO 44131

DECK SLAB PLAN, UNIT-3
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD

ERIE COUNTY			STA. 1233+43.75 TO		
ERI-2-18.38			STA. 1259+37.37		
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

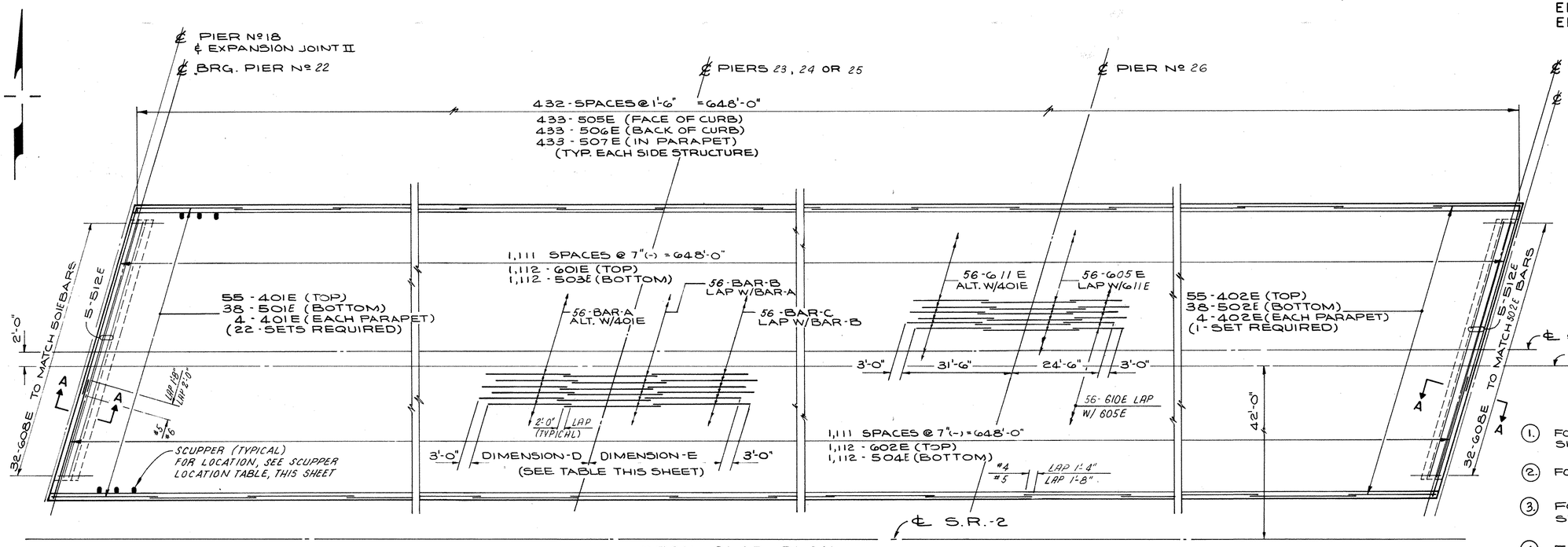
A·C·L form no. 8-1

FEB 4 '86

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

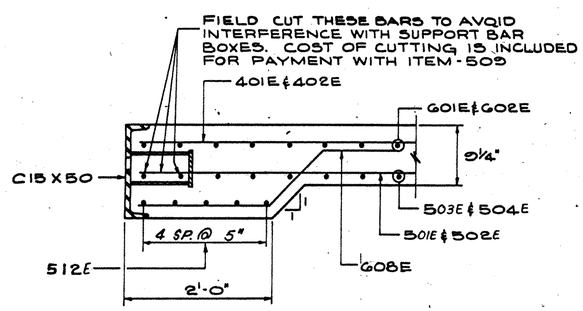
216/326

ERIE COUNTY
ERI-2-18.38



DECK SLAB PLAN

WESTBOUND STRUCTURE SHOWN,
EASTBOUND STRUCTURE SIMILAR



SECTION A-A

SCUPPER LOCATION TABLE

EASTBOUND LANES		WESTBOUND LANES	
NORTH GUTTER	SOUTH GUTTER	NORTH GUTTER	SOUTH GUTTER
STA. 1252+97.50	STA. 1252+93.00	STA. 1253+23.50	STA. 1253+09.00
STA. 1253+02.50	STA. 1252+98.00	STA. 1253+28.50	STA. 1253+14.00
	STA. 1253+09.50	STA. 1253+33.50	
STA. 1254+95.00	STA. 1254+80.00	STA. 1255+21.00	STA. 1255+06.00
STA. 1255+00.00	STA. 1254+85.00	STA. 1255+26.00	STA. 1255+11.00
STA. 1257+11.00	STA. 1256+96.00	STA. 1257+37.00	STA. 1257+22.00
STA. 1257+16.00	STA. 1257+01.00	STA 1257+42.00	STA. 1257+27.00

STAGGERED BARS OVER PIERS

PIER Nº	BAR-A	BAR-B	BAR-C	DIM.-D	DIM.-E
23	603E	605E	604E	34'-0"	37'-6"
24	605E	605E	606E	42'-8"	38'-0"
25	607E	605E	609E	29'-2"	36'-8"

NOTES:

1. FOR EXPANSION JOINT DETAILS SEE SHEETS 32/43 AND 34/43.
2. FOR SECTION A-A SEE THIS SHEET.
3. FOR REINFORCING SCHEDULE, SEE SHEET 41/43 & 43/43.
4. FOR TRANSVERSE SECTION, SEE SHEET 19/43.
5. FOR PAVEMENT ELEVATIONS, SEE SHEET 30/43.
6. ALL STAGGERED BARS OVER PIERS TO RUN FULL WIDTH OF BRIDGE DECK.
7. BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY-COATED INCLUDE A LETTER SUFFIX - "E".
8. THE PREFIX-"45" SHALL BE ADDED TO ALL REINFORCING BAR MARKS IN THE SUPERSTRUCTURE OF UNIT 4.
9. FOR PARAPET DETAILS, SEE SHEET 31/43.
10. ADJUST SPACING OF 507E BARS TO CLEAR PARAPET JOINTS.
11. TYPICAL LAPS:
    #4 BAR = 1'-4"
    #5 BAR = 1'-8"
    #6 BAR = 2'-0"

ALTERNATE-2

29/43

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DECK SLAB PLAN, UNIT-4

BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

ERIE COUNTY — STA. 1233+43.75 TO
ERI-2-18.38 — STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	K.L.M. / I.M.B.	L.E.D.	11/4/85	

FEB 4 1982

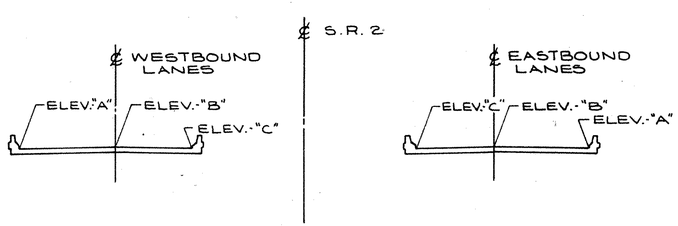
CALC.		OHIO
DATE		F.H.W.A. REGION 5
CHKD.		
DATE		

216Y 326

ERIE COUNTY
ERI-2-18.38

UNIT Nº 4

LOCATION	W. B. STRUCTURE			E. B. STRUCTURE		
	ELEV.-"A"	ELEV.-"B"	ELEV.-"C"	ELEV.-"C"	ELEV.-"B"	ELEV.-"A"
℄ PIER Nº 18	—	—	—	623.07	623.23	622.77
1252+75	—	—	—	—	623.23	622.92
℄ PIER Nº 18	623.50	623.71	623.33	—	—	—
1253+00	—	623.71	623.46	623.51	623.82	623.48
1253+25	623.90	624.28	624.00	624.02	624.32	623.95
1253+50	624.40	624.76	624.46	624.44	624.72	624.35
1253+75	624.80	625.14	624.84	624.80	625.07	624.71
℄ PIER Nº 19	—	—	—	625.16	625.35	624.91
1254+00	625.15	625.47	625.19	625.17	625.45	625.11
℄ PIER Nº 19	625.50	625.74	625.35	—	—	—
1254+25	625.50	625.84	625.57	625.59	625.88	625.55
1254+50	625.90	626.25	625.99	626.02	626.32	625.97
1254+75	626.31	626.67	626.35	626.40	626.69	626.32
1255+00	626.67	627.03	626.73	626.70	626.98	626.61
1255+25	626.96	627.30	627.00	626.97	627.24	626.89
℄ PIER Nº 20	—	—	—	627.24	627.45	627.04
1255+50	627.21	627.54	627.26	627.25	627.53	627.21
℄ PIER Nº 20	627.48	627.74	627.41	—	—	—
1255+75	627.47	627.82	627.55	627.58	627.88	627.55
1256+00	627.79	628.15	627.88	627.92	628.24	627.89
1256+25	628.11	628.49	628.20	628.21	628.52	628.15
1256+50	628.38	628.75	628.44	628.42	628.71	628.33
1256+75	628.57	628.92	628.61	628.56	628.83	628.47
℄ PIER Nº 21	—	—	—	628.69	628.92	628.54
1257+00	628.70	629.02	628.73	628.70	628.96	628.63
℄ PIER Nº 21	628.82	629.11	628.80	—	—	—
1257+25	628.82	629.14	628.87	628.87	629.15	628.82
1257+50	628.97	629.31	629.04	629.05	629.33	628.99
1257+75	629.13	629.47	629.20	629.20	629.47	629.13
1258+00	629.26	629.59	629.32	629.30	629.57	629.24
℄ PIER Nº 22	—	—	—	629.39	629.64	629.28
1258+25	629.35	629.68	629.41	629.43	629.71	629.39
℄ PIER Nº 22	629.43	629.74	629.45	—	—	—
1258+50	629.45	629.80	629.54	629.58	629.88	629.54
1258+75	629.59	629.96	629.68	629.70	629.99	629.63
1259+00	629.69	630.05	629.75	629.73	630.01	629.63
1259+25	629.71	630.04	629.74	629.68	—	—
℄ BRG. ABUT. Nº2	—	—	—	629.68	629.94	629.60
1259+50	629.65	—	—	—	—	—
℄ BRG. ABUT. Nº2	629.64	629.97	629.69	—	—	—



KEY ELEVATION

NOTE:
THESE ELEVATIONS ARE TO THE TOP OF THE PORTLAND CEMENT CONCRETE, AND ARE THOSE WHICH ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS CAUSED BY THE WEIGHT OF THE CONCRETE DECK. SEE KEY ELEVATION, (THIS SHEET) FOR LOCATION OF ELEVATION POINTS.

ALTERNATE-2 30/43

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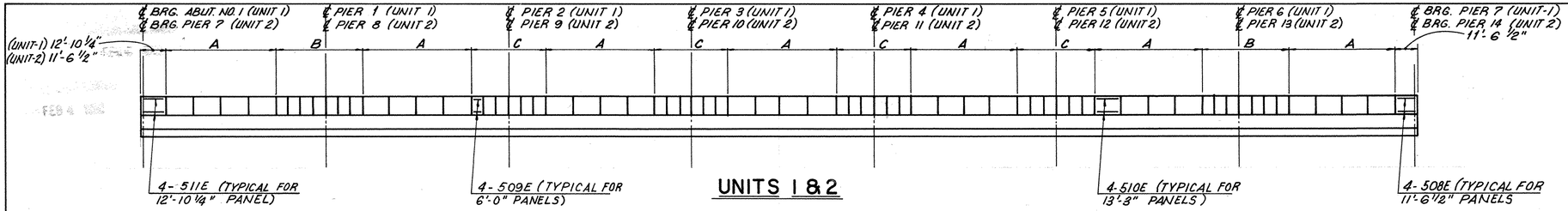
PAVEMENT ELEVATIONS

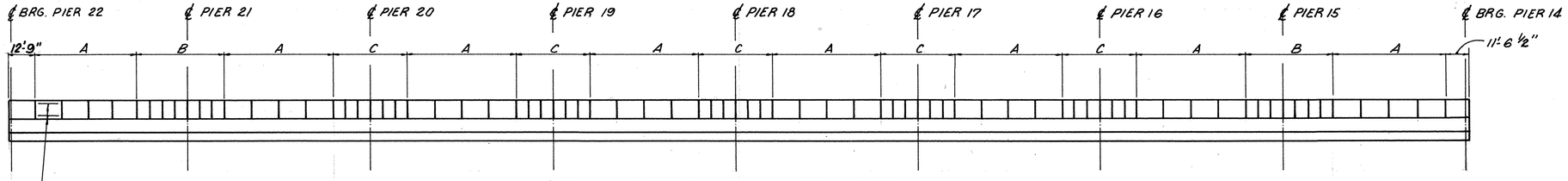
BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
J.D.P.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

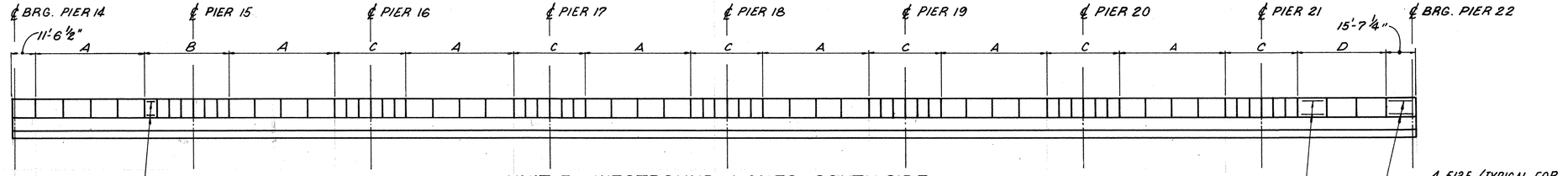
A·C·L form no. B-1



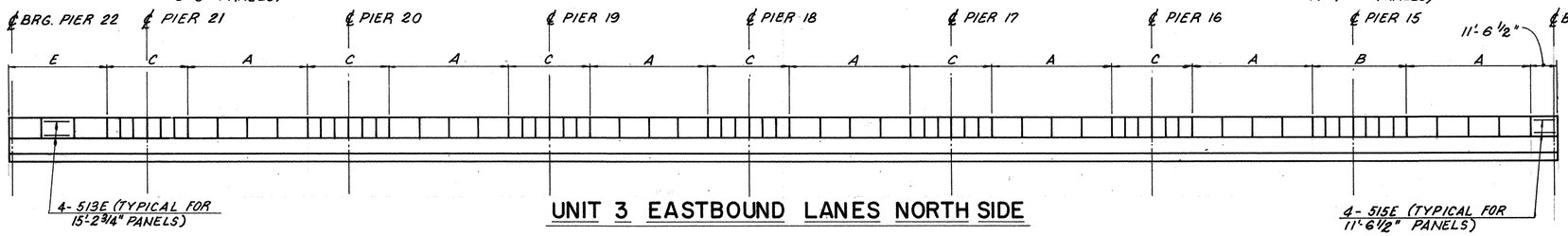
UNITS 1 & 2



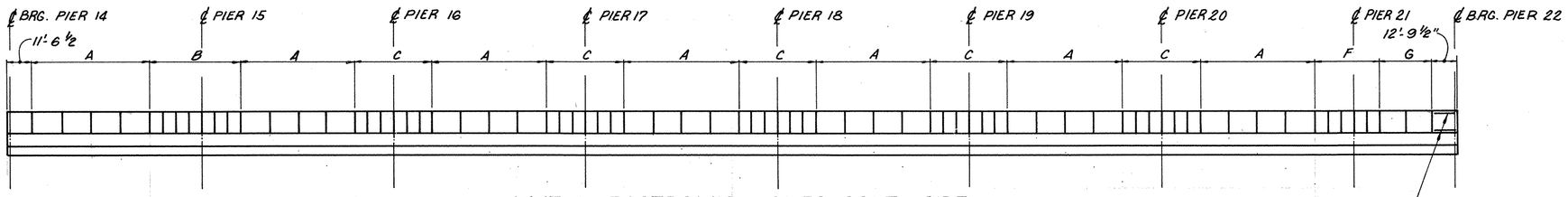
UNIT 3 WESTBOUND LANES NORTH SIDE



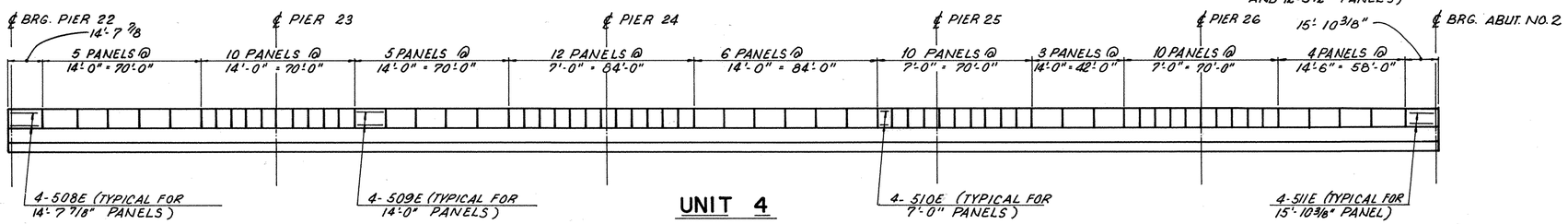
UNIT 3 WESTBOUND LANES SOUTH SIDE



UNIT 3 EASTBOUND LANES NORTH SIDE



UNIT 3 EASTBOUND LANES SOUTH SIDE



UNIT 4

A = 4 PANELS @ 13'-3"
B = 7 PANELS @ 6'-0"
C = 6 PANELS @ 6'-0"
D = 3 PANELS @ 14'-7"
E = 3 PANELS @ 15'-2 3/4"
F = 5 PANELS @ 6'-0"
G = 2 PANELS @ 13'-3"

NOTES:

1. FOR TRANSVERSE SECTION, SEE SHEETS 18 43 & 19 43.
2. FOR DECK SLAB PLANS SEE SHEETS 27 43, 28 43 & 29 43.
3. FOR ADDITIONAL RAILING DETAILS SEE STD. DWG. BR-1.
4. FOR REINFORCING SCHEDULE SEE SHEET 41 43, 42 43 & 43 43.
5. BAR MARKS FOR REINFORCING BARS WHICH ARE TO BE EPOXY COATED INCLUDE A LETTER SUFFIX -E.

CALC. ____ DATE ____
CHKD. ____ DATE ____
OHIO F.H.W.A. REGION 5

2162 326

ERIE COUNTY
ERI-2-18.38

FEB 4 1985

ALTERNATE - 2

31 43

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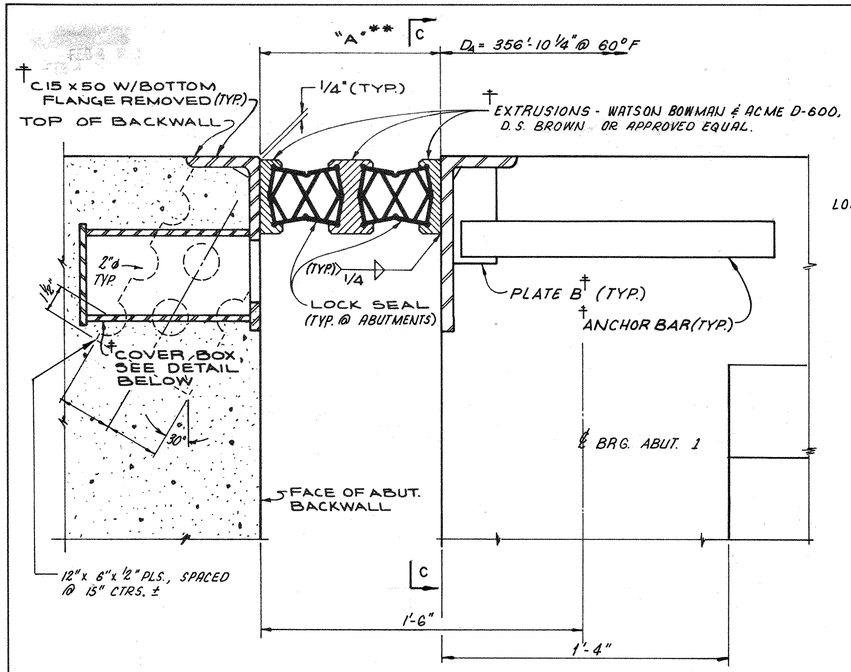
PARAPET ELEVATION

BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

A-C-L form no. B-1



EXPANSION JOINT I

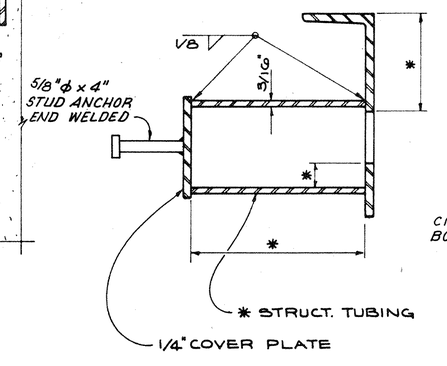
(ABUTMENT Nº 1)

EXPANSION JOINT IV

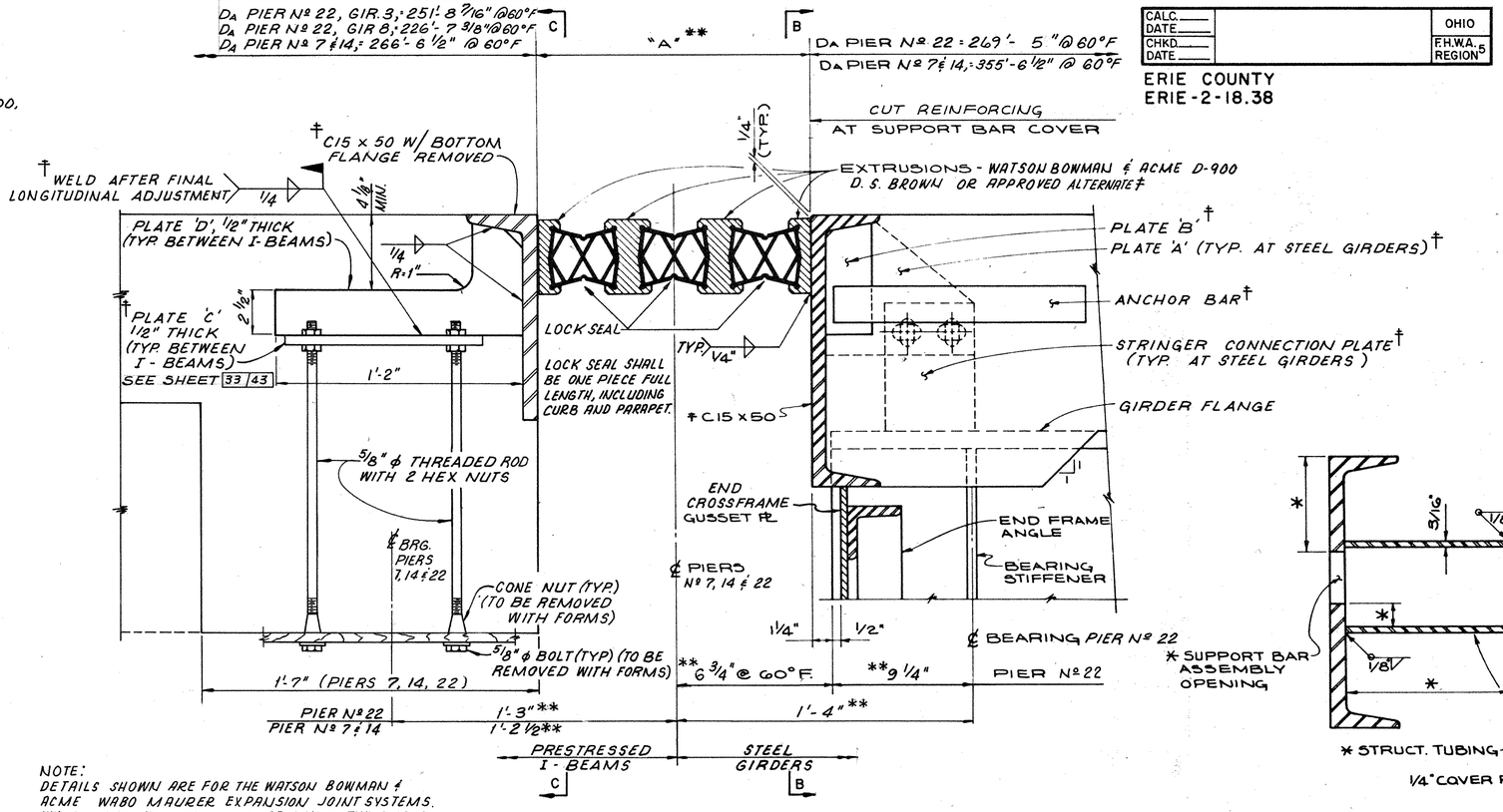
(ABUTMENT Nº 2)

NOTE:
DETAILS SHOWN ARE FOR THE WATSON BOWMAN & ACME WABO MAURER EXPANSION JOINT SYSTEMS. WHERE ANOTHER SYSTEM IS APPROVED, THE BIDDER SHALL FURNISH A MARKED SET OF PROJECT DRAWINGS SHOWING THE CHANGES IN PLAN DETAILS THAT WILL BE NECESSARY TO ACCOMMODATE THE PROPOSED ALTERNATE DEVICES. THESE PLANS MUST BE SUBMITTED AND APPROVED BEFORE THE SHOP DRAWINGS FOR STRUCTURAL STEEL WILL BE APPROVED.

EXPANSION JOINT SYSTEMS SHALL BE DESIGNED FOR AN IMPACT FRACTION OF 100 %.

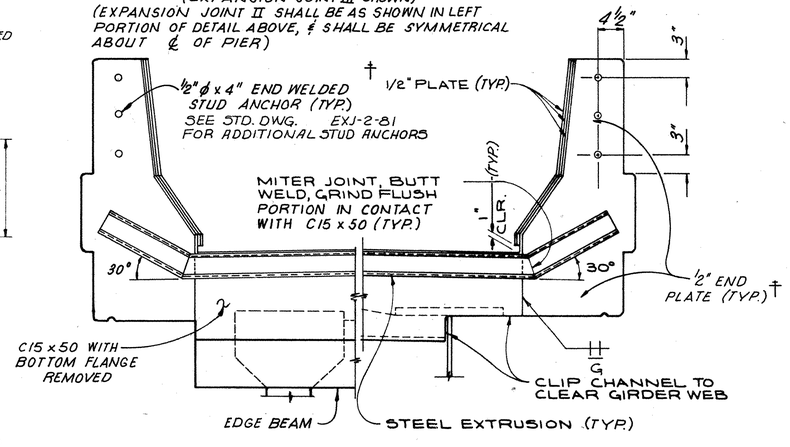


COVER BOX DETAIL†



EXPANSION JOINTS II AND III

TYPE II AT PIERS Nº 7 & 14
TYPE III AT PIER Nº 22
(EXPANSION JOINT III SHOWN)
(EXPANSION JOINT II SHALL BE AS SHOWN IN LEFT PORTION OF DETAIL ABOVE, & SHALL BE SYMMETRICAL ABOUT ℄ OF PIER)



JOINT TREATMENT AT PARAPETS

NOTE:

1. FOR "A" VALUE SEE TABLE ON SHEET 33/43.
2. FOR DETAILS NOT SHOWN SEE STD. DWGS. EXJ-2-81 AND SD-1-99, AND SHEETS 33/43 AND 34/43.
3. † INDICATES STEEL TO BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR ITEM 516, EXPANSION JOINTS. ALL JOINT STEEL, EXCEPT FOR THE STEEL EXTRUSIONS, SHALL BE GALVANIZED AS PER 711.02
4. ** INDICATES DIMENSION NORMAL TO EXPANSION JOINT.
5. * ITEMS DENOTED BY AN ASTERISK SHALL BE VERIFIED BY THE JOINT MANUFACTURER, PRIOR TO FABRICATION.

ALTERNATE - 2

32/43

CALC.		OHIO
DATE		F.H.W.A. REGION 5
CHKD.		
DATE		

217/326

ERIE COUNTY
ERIE-2-18.38

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EXPANSION JOINT DETAILS

BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

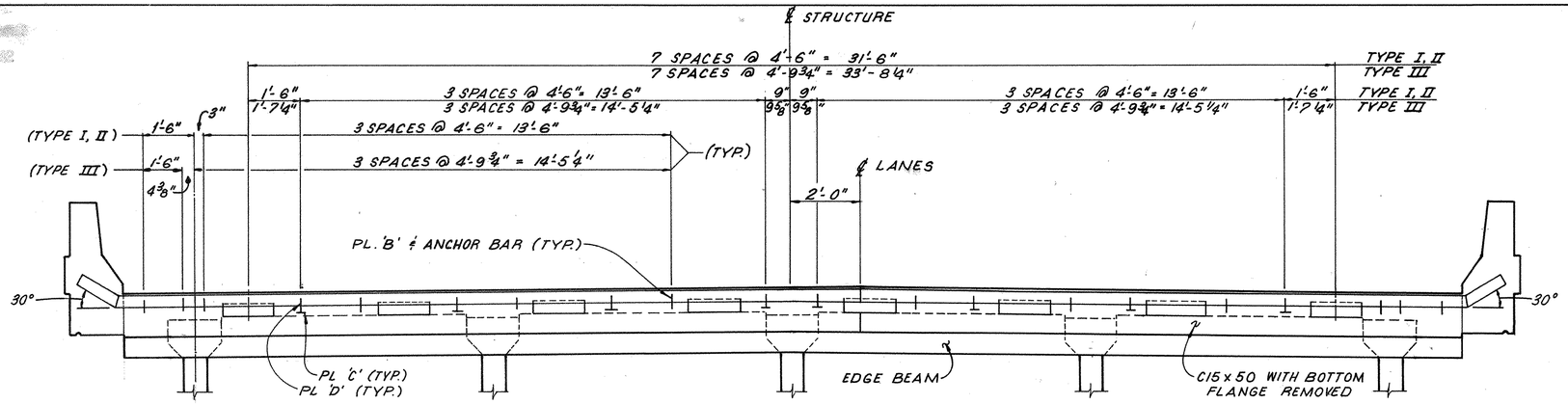
DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P. D.R.J.	K.L.M.	L.E.D.	11/4/85	

A-C-L form no. B-1

CALC.		OHIO
DATE		F.H.W.A.
CHKD.		REGION 5
DATE		

217A
326

ERIE COUNTY
ERI-2-18.38



VIEW C-C

TYPE - III JOINT E.B. STRUCTURE, TYPE - I JOINT W.B STRUCTURE AND TYPE - II JOINT SHOWN, TYPE - III JOINT W.B. STRUCTURE AND TYPE - I JOINT E.B. STRUCTURE OPPOSITE HAND.
(LOOKING INTO SUPERSTRUCTURE)

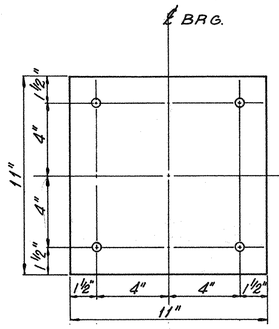


PLATE C
ABUTMENT NO. 1
PIERS 7 AND 14

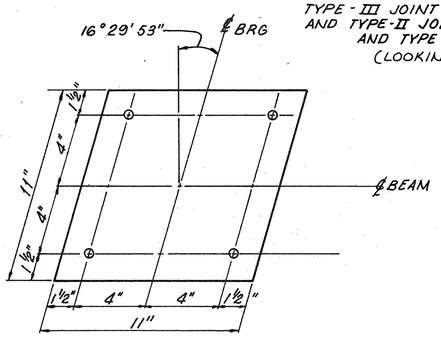


PLATE C
PIER 22

TEMPERATURE ADJUSTMENT FOR 'A'										
JOINT	30°	40°	50°	60°	70°	80°	90°	MIN.	MAX.	LOCATION
I	8 1/2"	8 1/4"	8"	7 3/4"	7 1/2"	7 1/4"	7"	6 3/16"	10 1/16"	A-1
II	12 3/8"	11 7/8"	11 7/16"	11"	10 9/16"	10 1/8"	9 5/8"	8 5/16"	15 1/16"	P.7, P.14
III	12 1/8"	11 3/4"	11 3/16"	11"	10 5/16"	10 1/4"	9 7/8"	8 3/4"	14 3/8"	P-22
IV	8 7/8"	8 9/16"	8 5/16"	8"	7 11/16"	7 7/16"	7 1/8"	6 5/16"	10 9/16"	A-2

NOTES:

FOR ADDITIONAL NOTES, SEE SHEET 32/43.

FOR EXPANSION JOINT DETAILS NOT SHOWN, SEE SHEETS 32/43.

ALTERNATE - 2

33/43

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EXPANSION JOINT DETAILS

BRIDGE Nº ERI - 2 - 1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R. R. & RIVER ROAD

ERIE COUNTY
ERI-2-18.38

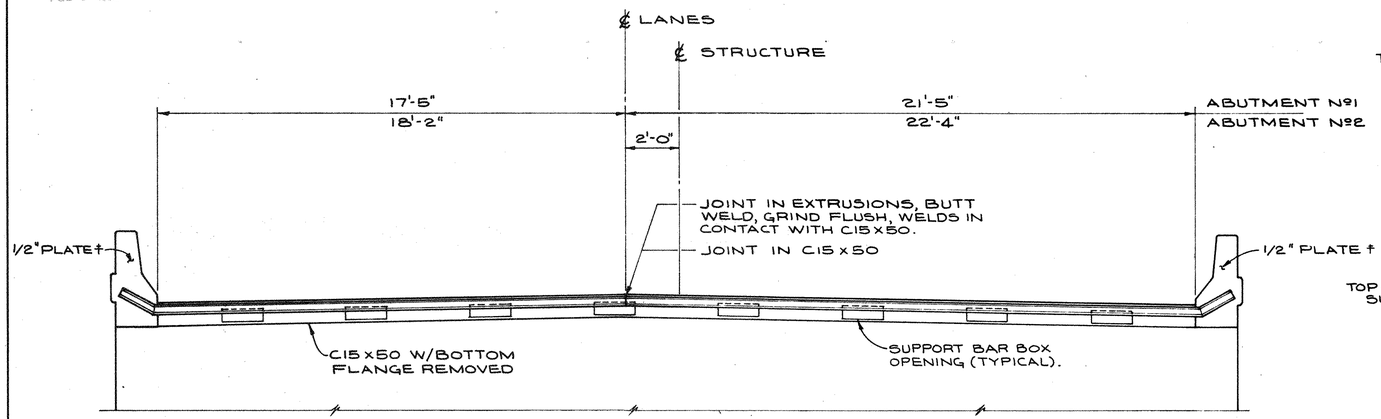
STA. 1233+43.75 TO
STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

2178
326

ERIE COUNTY
ERIE-2-18.38

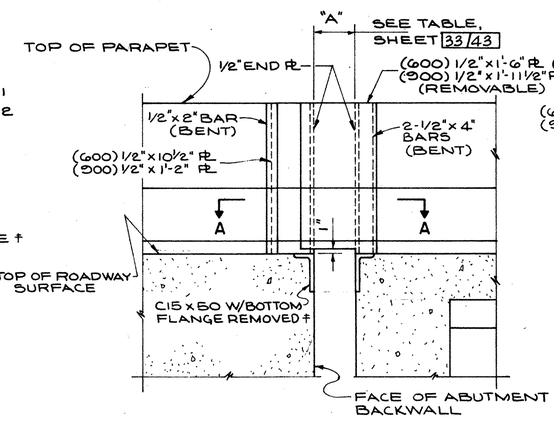


ABUTMENT Nº1 W.B. STRUCTURE, & ABUTMENT Nº2 E.B. STRUCTURE SHOWN, ABUTMENT Nº2 W.B. STRUCTURE, & ABUTMENT Nº1 E.B. STRUCTURE OPPOSITE HAND.

ELEVATION

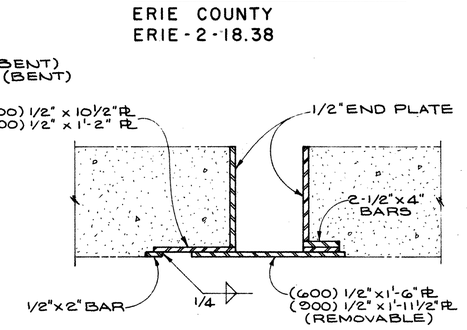
EXPANSION JOINT ALONG FACE OF ABUTMENT BACKWALL

(ANCHOR BARS NOT SHOWN)



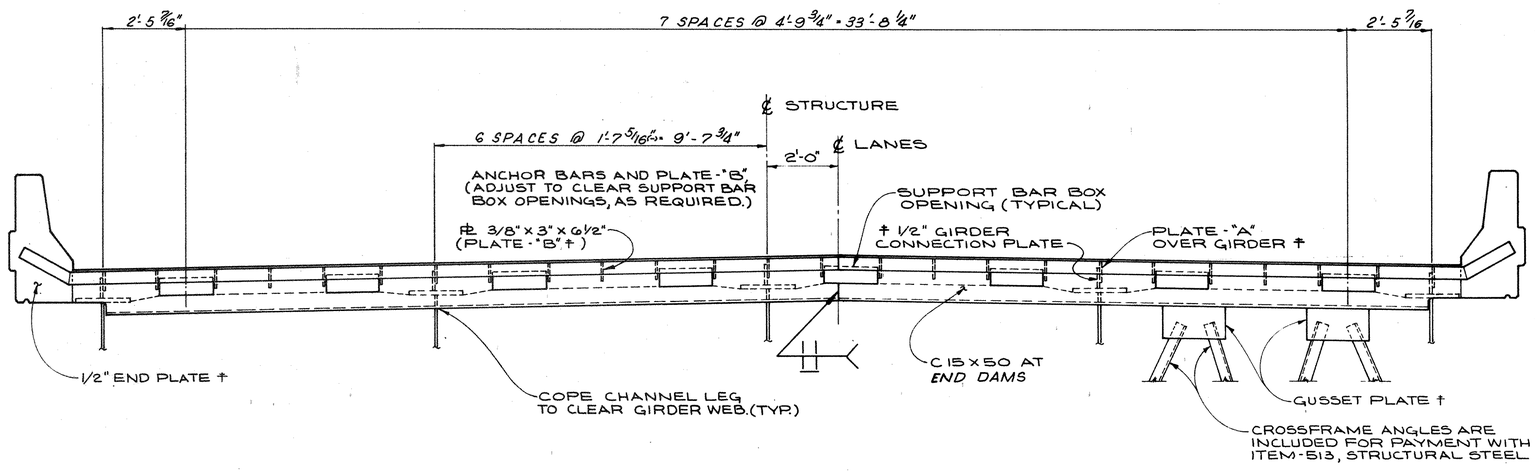
PARAPET ELEVATION AT EXPANSION JOINTS

TYPE-I JOINT SHOWN, TYPES II III IV SIMILAR.



NOTE:
FOR BOLTS, BOLT LOCATIONS, ANCHOR STUDS AND WELDING CALLOUTS NOT SHOWN, SEE STD. CONST. DWG. TS-EXJ-2-81 AND SHEET 32/43.

SECTION A-A



VIEW B–B

TYPE-III JOINT W.B. STRUCTURE & TYPE IV JOINT E.B STRUCTURE SHOWN.
TYPE-III JOINT E.B. STRUCTURE & TYPE IV JOINT W.B. STRUCTURE OPPOSITE HAND.

(LOOKING INTO SUPERSTRUCTURE)

NOTES:

1. FOR EXPANSION JOINT DETAILS NOT SHOWN, SEE SHEET 32/43.
2. FOR ADDITIONAL NOTES, SEE SHEET 32/43.
3. STEEL MEMBERS SHALL BE FURNISHED IN LENGTHS AS LONG AS PRACTICABLE. AT ALL FIELD BUTT JOINTS THEY SHALL BE RIGIDLY FASTENED TOGETHER AS REQUIRED PRIOR TO PLACING CONCRETE.
4. THE PARAPET SLIDING PLATES, END PLATES, ANCHOR STUDS AND ALL MISC. STEEL SHOWN IN SECTION A-A SHALL BE GALVANIZED AS PER 711.02.

ALTERNATE - 2

34/43

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EXPANSION JOINT DETAILS

BRIDGE Nº ERI-2-1911 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

ERIE COUNTY — STA. 1233+43.75 TO
ERI-2-18.38 — STA. 1259+37 37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
L.E.D.	J.D.P.	K.L.M.	L.E.D.	11/4/85	

CALC DATE		OHIO
CHKD DATE		FHWA REGION 5

217C 326

ERIE COUNTY
ERI - 2 - 18.38

ABUTMENTS

MARK	Nº REQUIRED W.B.	Nº REQUIRED E.B.	Nº REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				ABUTMENT NO. 1							
1A401	30	30	60	3'-4"	1	8"	2'-2"	8"			134
1A501	14	14	28	11'-0"	3	2'-3"	3'-0"				321
1A502	18	18	36	30'-0"	ST.						1,126
1A503	18	18	36	13'-4"	ST.						501
1A504	30	30	60	8'-3"	1	1'-4"	5'-10"	1'-4"			516
1A505	30	30	60	7'-8"	1	2'-0"	3'-11"	2'-0"			480
1A506	30	30	60	7'-4"	13	6'-7"	10"				459
1A507	16	16	32	10'-2"	ST.						339
1A508	8	8	16	7'-8"	ST.						128
1A509	4	4	8	9'-7"	ST.						80
1A510	12	12	24	15'-8"	ST.						392
1A511	12	12	24	5'-8"	ST.						142
1A518	18	18	36	6'-2"	ST.						232
1A519	4	4	8	5'-2"	ST.						43
1A520	2	2	4	3'-9"	ST.						16
1A601	4	4	8	4'-11"	ST.						59
1A602	30	30	60	14'-9"	1	2'-6"	5'-10"	6'-9"			1,329
1A603	40	40	80	7'-9"	1	3'-4"	1'-5"	3'-4"			931
1A604	40	40	80	11'-1"	1	5'-0"	1'-5"	5'-0"			1,432
1A606	12	12	24	18'-6"	1	8'-10"	1'-2"	8'-10"			667
1A607	12	12	24	5'-8"	ST.						204
1A608	8	8	16	7'-4"	1	3'-3"	1'-2"	3'-3"			176
1A609	2	2	4	8'-8"	1	3'-11"	1'-2"	3'-11"			52
1A610	2	2	4	10'-0"	1	4'-7"	1'-2"	4'-7"			60
1A611	4	4	8	6'-10"	ST.						82
1A615	6	6	12	8'-7"	ST.						155
1A801	7	7	14	30'-0"	ST.						1,121
1A802	7	7	14	18'-1"	ST.						676
1A803	4	4	8	13'-0"	ST.						278
1A804	8	8	16	9'-4"	ST.						399
										TOTAL WEIGHT	12,530

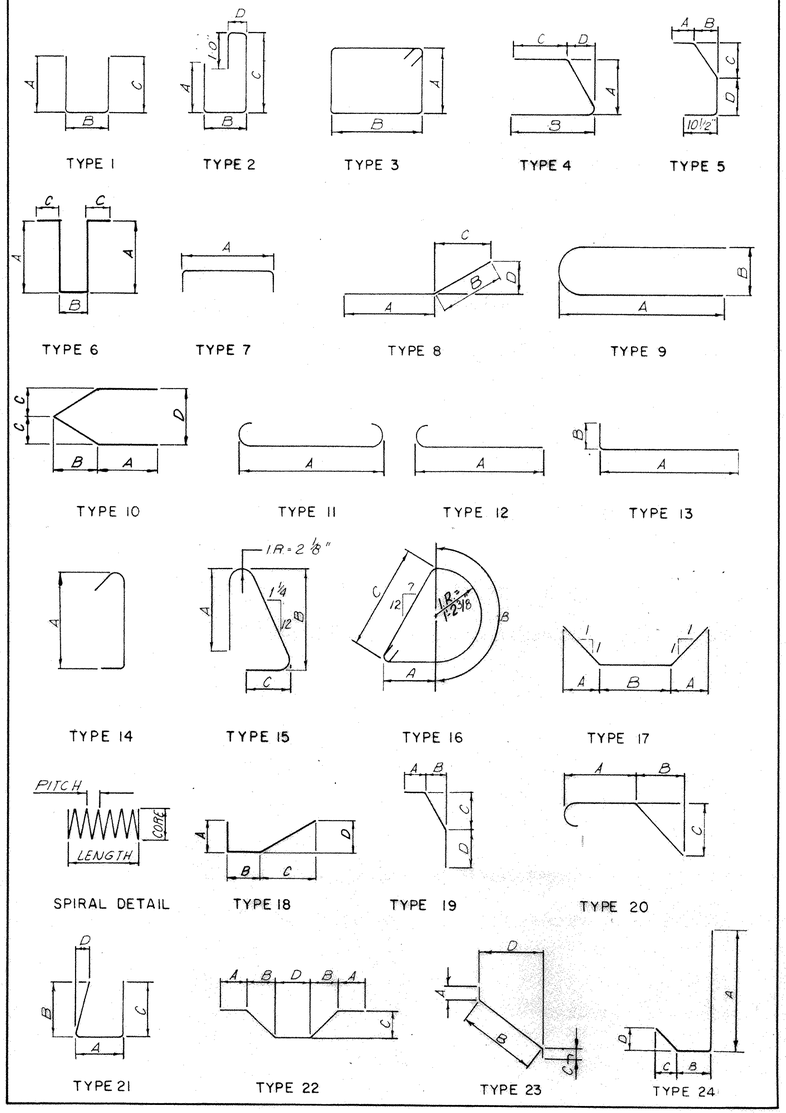
ABUTMENTS

MARK	Nº REQUIRED W.B.	Nº REQUIRED E.B.	Nº REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				ABUTMENT NO. 2							
2A401	30	30	60	3'-4"	1	8"	2'-2"	8"			134
2A501	22	22	44	11'-0"	3	2'-3"	3'-0"				505
2A502	30	30	60	8'-3"	1	1'-4"	5'-10"	1'-4"			516
2A503	30	30	60	7'-4"	13	6'-7"	10"				458
2A504	30	30	60	7'-8"	1	2'-0"	3'-11"	2'-0"			480
2A505	40	40	80	22'-7"	ST.						1,884
2A506	18	18	36	7'-4"	ST.						276
2A507	4	4	8	13'-1"	ST.						109
2A508	4	4	8	12'-10"	ST.						107
2A509	6	6	12	10'-8"	ST.						134
2A510	2	2	4	10'-4"	ST.						43
2A511	3	3	6	12'-7"	ST.						79
2A512	1	1	2	12'-3"	ST.						26
2A513	9	9	18	18'-8"	ST.						350
2A514	3	3	6	18'-4"	ST.						115
2A515	8	8	16	13'-3"	ST.						222
2A601	30	30	60	14'-7"	1	2'-6"	5'-10"	6'-7"			1,314
2A602	41	41	82	12'-7"	1	5'-9"	1'-5"	5'-9"			1,550
2A603	41	41	82	9'-1"	1	4'-0"	1'-5"	4'-0"			1,118
2A605	18	18	36	18'-2"	1	8'-8"	1'-2"	8'-8"			982
2A606	18	18	36	7'-4"	ST.						396
2A607	1	1	2	10'-2"	1	4'-8"	1'-2"	4'-8"			31
2A608	1	1	2	8'-10"	1	4'-0"	1'-2"	4'-0"			27
2A609	4	4	8	7'-6"	1	3'-4"	1'-2"	3'-4"			90
2A610	4	4	8	6'-10"	ST.						82
2A611	1	1	2	9'-8"	1	4'-5"	1'-2"	4'-5"			29
2A612	1	1	2	8'-4"	1	3'-9"	1'-2"	3'-9"			25
2A613	4	4	8	7'-0"	1	3'-1"	1'-2"	3'-1"			84
2A614	2	2	4	4'-3"	ST.						26
2A615	6	6	12	10'-2"	ST.						184
2A616	4	4	8	7'-2"	ST.						86
2A617	4	4	8	4'-11"	ST.						59
2A801	4	4	8	24'-3"	ST.						518
2A802	10	10	20	25'-1"	ST.						1,339
2A803	2	2	4	22'-0"	24	16'-1"	1'-5"	4'-6"	1'-4"		235
2A804	8	8	16	12'-9"	ST.						544
2A805	2	2	4	16'-0"							171
										TOTAL	14,328

REINFORCING STEEL SAMPLES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUGTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

BENDING DIAGRAMS



ALTERNATE - 2

35/43

adache ciuni lynn associates
CONSULTING ENGINEERS CLEVELAND

REINFORCING STEEL LIST

BRIDGE Nº ERI - 2 - 19.11 L / R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233 + 43.75 TO
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

ACL form no B-1

CALC.		OHIO
DATE		F.H.W.A.
CHKD.		REGION 5
DATE		

2170
326

ERIE COUNTY
ERI-2-18.38

PIERS

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
PIER NO 1											
1P501	49	49	98	19'-1"	3	3'-8"					1,959
1P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
1P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
1P601	4	4	8	38'-4"	ST.						461
1P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
1P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
PIER NO. 2											
2P501	49	49	98	19'-1"	3	3'-8"					1,959
2P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
2P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
2P601	4	4	8	38'-4"	ST.						461
2P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
2P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
PIER NO. 3											
3P501	49	49	98	19'-1"	3	3'-8"					1,959
3P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
3P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
3P601	4	4	8	38'-4"	ST.						461
3P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
3P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109

PIERS

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
PIER NO. 4											
4P501	49	49	98	19'-1"	3	3'-8"					1,959
4P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
4P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
4P601	4	4	8	38'-4"	ST.						461
4P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
4P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
PIER NO. 5											
5P501	49	49	98	19'-1"	3	3'-8"					1,959
5P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
5P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
5P601	4	4	8	38'-4"	ST.						461
5P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
5P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
PIER NO. 6											
6P501	49	49	98	19'-1"	3	3'-8"					1,959
6P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
6P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
6P601	4	4	8	38'-4"	ST.						461
6P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
6P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109

PIERS

MARK	NO REQUIRED			LENGTH	TYPE	DIMENSIONS				INCRM.	WEIGHT LBS.
	W.B.	E.B.	TOTAL			A	B	C	D		
PIER NO. 7											
7P501	49	49	98	19'-1"	3	3'-8"					1,959
7P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
7P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
7P601	4	4	8	38'-4"	ST.						461
7P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
7P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
PIER NO. 8											
8P501	49	49	98	19'-1"	3	3'-8"					1,959
8P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
8P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
8P601	4	4	8	38'-4"	ST.						461
8P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
8P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109

FOR BENDING DIAGRAMS AND NOTE, SEE SHEET 35/43

ALTERNATE - 2

36/43

adache · ciuni · lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING STEEL LIST

BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

ERIE COUNTY
ERI-2-18.38

CALC.		OHIO
DATE		F.H.W.A. REGION 5
CHKD.		
DATE		

217E 326

PIERS

MARK	NO REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
PIER NO. 9											
9P501	49	49	98	19'-1"	3	3'-8"					1,959
9P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
9P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
9P601	4	4	8	38'-4"	ST.						461
9P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
9P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
PIER NO. 10											
10P501	49	49	98	19'-1"	3	3'-8"					1,959
10P502	24	24	48	8'-3"	1	3'-3"	2'-0"	3'-3"			413
10P503	8	8	16	8'-9"	1	1'-8"	5'-8"	1'-8"			146
10P601	4	4	8	38'-4"	ST.						461
10P801	8	8	16	13'-9"	1	6'-0"	2'-2"	6'-0"			587
10P802											
10P1101	18	18	36	44'-8"	1	3'-6"	38'-4"	3'-6"			8,543
										TOTAL WEIGHT	12,109
PIER NO. 11											
11P401	30	30	60	7'-8"	9	2'-11"	3'-2"				307
11P402	30	30	60	8'-6"	ST.						341
11P403	75	75	150	4'-1"	14	3'-2"	8"				409
11P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
11P502	2	2	4	12'-0"	ST.						50
11P503	2	2	4	19'-10"	ST.						83
11P504	2	2	4	28'-0"	ST.						117
11P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
11P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
11P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11"TO 8'-2"	2'-3"	4'-11" TO 8'-2"		6"	1,762
11P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
11P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3"	7'-3" TO 8'-0"		6"	576
11P801	12	12	24	38'-4"	ST.						2,456

PIERS

MARK	NO REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
PIER NO.11 CONT.											
11P901	56	56	112	15'-0"	11	12'-6"					5,712
11P902	36	36	72	25'-0"	11	22'-6"					6,120
11P1001	46	46	92	10'-6"	13	9'-0"	1'-10"				4,157
11P1002	46	46	92	22'-6"	ST.						8,907
11P1101	9	9	18	38'-4"	ST.						3,666
11P1102	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
										TOTAL WEIGHT	40,692
PIER NO.12											
12P401	34	34	68	7'-8"	9	2'-11"	3'-2"				348
12P402	34	34	68	8'-6"	ST.						386
12P403	85	85	170	4'-1"	14	3'-2"	8"				464
12P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
12P502	2	2	4	12'-0"	ST.						50
12P503	2	2	4	19'-10"	ST.						83
12P504	2	2	4	28'-0"	ST.						117
12P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
12P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
12P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11"TO 8'-2"	2'-3"	4'-11"TO 8'-2"		6"	1,762
12P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
12P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3"	7'-3" TO 8'-0"		6"	576
12P801	46	46	92	8'-2"	13	7'-0"	1'-4"				2,006
12P802	46	46	92	24'-2"	ST.						5,936
12P803	12	12	24	38'-4"	ST.						2,456
12P1101	14	14	28	20'-10"	11	17'-8"					3,099
12P1102	22	22	44	15'-10"	11	12'-8"					3,701
12P1103	9	9	18	38'-4"	ST.						3,666
12P1104	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
										TOTAL WEIGHT	30,679

PIERS

MARK	NO REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
PIER NO.13											
13P401	38	38	76	7'-8"	9	2'-11"	3'-2"				389
13P402	38	38	76	8'-6"	ST.						432
13P403	95	95	190	4'-1"	14	3'-2"	8"				518
13P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
13P502	2	2	4	12'-0"	ST.						50
13P503	2	2	4	19'-10"	ST.						83
13P504	2	2	4	28'-0"	ST.						117
13P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
13P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
13P507	4 SETS OF 14 BARS	4 SETS OF 14 BARS	8 SETS OF 14 BARS	11'-10" TO 18'-4"	1	4'-11"TO 8'-2"		4'-11"TO 8'-2"		6"	1,762
13P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
13P509	4 SETS OF 4 BARS	4 SETS OF 4 BARS	8 SETS OF 4 BARS	16'-6" TO 18'-0"	1	7'-3" TO 8'-0"	2'-3"	7'-3" TO 8'-0"		6"	576
13P801	46	46	92	8'-2"	13	7'-0"	1'-4"				2,006
13P802	46	46	92	26'-8"	ST.						6,550
13P803	12	12	24	38'-4"	ST.						2,456
13P1101	14	14	28	20'-10"	11	17'-8"					3,099
13P1102	22	22	44	15'-10"	11	12'-8"					3,701
13P1103	9	9	18	38'-4"	ST.						3,666
13P1104	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
										TOTAL WEIGHT	31,434
PIER NO. 14											
14P401	44	44	88	7'-8"	9	2'-11"	3'-2"				451
14P402	44	44	88	8'-6"	ST.						500
14P403	110	110	220	4'-1"	14	3'-2"	8"				600
14P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
14P502	2	2	4	12'-0"	ST.						50
14P503	2	2	4	19'-10"	ST.						83
14P504	2	2	4	28'-0"	ST.						117
14P505	14	14	28	6'-8"	1	1'-8"	3'-7"	1'-8"			195
14P506	72	72	144	5'-7"	1	1'-8"	2'-6"	1'-8"			839

ALTERNATE-2

FOR BENDING DIAGRAMS AND NOTE, SEE SHEET 35/43

37/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING STEEL LIST

BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/05	

A-C-L form no. B-1

PIERS

MARK	NO REQUIRED W.B.	NO REQUIRED E.B.	NO REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				PIER NO. 14 CONT.							
14P507	4 SETS OF	4 SETS OF	8 SETS OF	12'-1" TO	1	4'-11" TO	2'-6"	4'-11" TO		6"	1,791
	14 BARS	14 BARS	14 BARS	18'-7"		8'-2"		8'-2"			
14P508	15	15	30	8'-3"	1	2'-5"	3'-8"	2'-5"			258
14P509	4 SETS OF	4 SETS OF	8 SETS OF	16'-9" TO	1	7'-3" TO	2'-6"	7'-3" TO		6"	584
	4 BARS	4 BARS	4 BARS	18'-3"		8'-0"		8'-0"			
14P801	46	46	92	8'-2"	13	7'-0"	1'-4"				2,006
14P802	46	46	92	29'-3"	ST.						7,185
14P803	12	12	24	38'-4"	ST.						2,456
14P1101	14	14	28	20'-10"	11	17'-8"					3,099
14P1102	22	22	44	15'-10"	11	12'-8"					3,701
14P1103	9	9	18	38'-4"	ST.						3,666
14P1104	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
										TOTAL WEIGHT	32,387
				PIER NO. 15							
15P401	48	48	96	7'-8"	9	2'-11"	3'-2"				492
15P402	48	48	96	8'-6"	ST.						545
15P403	120	120	240	4'-1"	14	3'-2"	8"				655
15P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
15P502	2	2	4	12'-0"	ST.						50
15P503	2	2	4	19'-10"	ST.						83
15P504	2	2	4	28'-0"	ST.						117
15P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
15P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
15P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-10" TO	1	4'-11" TO	2'-3"	4'-11" TO		6"	1,762
	14 BARS	14 BARS	14 BARS	18'-4"		8'-2"		8'-2"			
15P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
15P509	4 SETS OF	4 SETS OF	8 SETS OF	16'-6" TO	1	7'-3" TO	2'-3"	7'-3" TO		6"	576
	4 BARS	4 BARS	4 BARS	18'-0"		8'-0"		8'-0"			
15P801	12	12	24	38'-4"	ST.						2,456
15P1001	31	31	62	15'-4"	11	12'-6"					4,091
15P1002	22	22	44	23'-4"	11	20'-6"					4,418

PIERS

MARK	NO REQUIRED W.B.	NO REQUIRED E.B.	NO REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				PIER NO. 15 CONT.							
15P1003	46	46	92	10'-6"	13	9'-0"	1'-10"				4,157
15P1004	46	46	92	31'-9"	ST.						12,569
15P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
15P1102	9	9	18	38'-4"	ST.						3,666
										TOTAL WEIGHT	41,666
				PIER NO. 16							
16P401	54	54	108	7'-8"	9	2'-11"	3'-2"				553
16P402	54	54	108	8'-6"	ST.						613
16P403	135	135	270	4'-1"	14	3'-2"	8"				736
16P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
16P502	2	2	4	12'-0"	ST.						50
16P503	2	2	4	19'-10"	ST.						83
16P504	2	2	4	28'-0"	ST.						117
16P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
16P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
16P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-10" TO	1	4'-11" TO	2'-3"	4'-11" TO		6"	1,762
	14 BARS	14 BARS	14 BARS	18'-4"		8'-2"		8'-2"			
16P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
16P509	4 SETS OF	4 SETS OF	8 SETS OF	16'-6" TO	1	7'-3" TO	2'-3"	7'-3" TO		6"	576
	4 BARS	4 BARS	4 BARS	18'-0"		8'-0"		8'-0"			
16P801	12	12	24	38'-4"	ST.						2,456
16P1001	31	31	62	15'-4"	11	12'-6"					4,091
16P1002	22	22	44	23'-4"	11	20'-6"					4,418
16P1003	46	46	92	10'-6"	13	9'-0"	1'-10"				4,157
16P1004	46	46	92	34'-3"	ST.						13,559
16P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
16P1102	9	9	18	38'-4"	ST.						3,666
										TOTAL WEIGHT	42,866

PIERS

MARK	NO REQUIRED W.B.	NO REQUIRED E.B.	NO REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				PIER NO. 17							
17P401	60	60	120	7'-8"	9	2'-11"	3'-2"				615
17P402	60	60	120	8'-6"	ST.						681
17P403	150	150	300	4'-1"	14	3'-2"	8"				818
17P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
17P502	2	2	4	12'-0"	ST.						50
17P503	2	2	4	19'-10"	ST.						83
17P504	2	2	4	28'-0"	ST.						117
17P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
17P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
17P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-10" TO	1	4'-11" TO	2'-3"	4'-11" TO		6"	1,762
	14 BARS	14 BARS	14 BARS	18'-4"		8'-2"		8'-2"			
17P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
17P509	4 SETS OF	4 SETS OF	8 SETS OF	16'-6" TO	1	7'-3" TO	2'-3"	7'-3" TO		6"	576
	4 BARS	4 BARS	4 BARS	18'-0"		8'-0"		8'-0"			
17P801	12	12	24	38'-4"	ST.						2,456
17P1001	31	31	62	15'-4"	11	12'-6"					4,091
17P1002	22	22	44	23'-4"	11	20'-6"					4,418
17P1003	46	46	92	10'-6"	13	9'-0"	1'-10"				4,157
17P1004	46	46	92	37'-0"	ST.						14,647
17P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
17P1102	9	9	18	38'-4"	ST.						3,666
										TOTAL WEIGHT	44,166
				PIER NO. 18							
18P401	66	66	132	7'-8"	9	2'-11"	3'-2"				676
18P402	66	66	132	8'-6"	ST.						749
18P403	198	198	396	4'-1"	14	3'-2"	8"				1,080
18P501	8	8	16	15'-1"	8	1'-8"	13'-6"	13'-2"	3'-1"		252
18P502	2	2	4	12'-0"	ST.						50
18P503	2	2	4	20'-6"	ST.						86
18P504	2	2	4	29'-6"	ST.						123

ALTERNATE - 2

FOR BENDING DIAGRAMS AND NOTE, SEE SHEET 35/43

38/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING STEEL LIST

BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

CALC. ____ DATE ____
CHKD. ____ DATE ____
OHIO
F.H.W.A. REGION 5

2176
326

ERIE COUNTY
ERI - 2 - 18.38

PIERS

MARK	Nº REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
PIER NO. 18 CONT.											
18P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
18P506	72	72	144	5'-3"	1	1'-8"	2'-2"	1'-8"			789
18P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-9" TO	1	4'-11" TO	2'-2"	4'-11" TO		6"	1,752
	14 BARS	14 BARS	14 BARS	18'-3"		8'-2"		8'-2"			
18P508	10	10	20	7'-9"	1	2'-5"	3'-2"	2'-5"			162
18P509	4 SETS OF	4 SETS OF	8 SETS OF	16'-5" TO	1	7'-3" TO	2'-2"	7'-3" TO		6"	573
	4 BARS	4 BARS	4 BARS	17'-11"		8'-0"		8'-0"			
18P801	12	12	24	38'-4"	ST.						2,456
18P901	64	64	128	17'-0"	11	14'-6"					7,398
18P1101	52	52	104	19'-8"	13	18'-0"	2'-0"				10,867
18P1102	26	26	52	32'-1"	ST.						8,864
18P1103	9	9	18	38'-4"	ST.						3,666
18P1104	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
18P1105	36	36	72	29'-8"	11	26'-6"					11,349
										TOTAL WEIGHT	55,615
PIER NO. 19											
19P401	70	70	140	7'-8"	9	2'-11"	3'-2"				717
19P402	70	70	140	8'-6"	ST.						795
19P403	175	175	350	4'-1"	14	3'-2"	8"				955
19P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
19P502	2	2	4	12'-0"	ST.						50
19P503	2	2	4	19'-10"	ST.						83
19P504	2	2	4	28'-0"	ST.						117
19P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
19P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
19P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-10" TO	1	4'-11" TO	2'-3"	4'-11" TO		6"	1,762
	14 BARS	14 BARS	14 BARS	18'-4"		8'-2"		8'-2"			
19P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
19P509	4 SETS OF	4 SETS OF	8 SETS OF	16'-6" TO	1	7'-3" TO	2'-3"	7'-3" TO		6"	576
	4 BARS	4 BARS	4 BARS	18'-0"		8'-0"		8'-0"			
19P801	12	12	24	38'-4"	ST.						2,456

PIERS

MARK	Nº REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
PIER NO. 19 CONT.											
19P1001	31	31	62	15'-4"	11	12'-6"					4,091
19P1002	22	22	44	23'-4"	11	20'-6"					4,418
19P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
19P1102	9	9	18	38'-4"	ST.						3,666
19P1103	46	46	92	42'-0"	ST.						20,529
19P1104	46	46	92	11'-11"	13	10'-3"	2'-0"				5,825
										TOTAL WEIGHT	52,069
PIER NO. 20											
20P401	74	74	148	7'-8"	9	2'-11"	3'-2"				758
20P402	74	74	148	8'-6"	ST.						840
20P403	185	185	370	4'-1"	14	3'-2"	8"				1,009
20P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
20P502	2	2	4	12'-0"	ST.						50
20P503	2	2	4	19'-10"	ST.						83
20P504	2	2	4	28'-0"	ST.						117
20P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
20P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
20P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-10" TO	1	4'-11" TO	2'-3"	4'-11" TO		6"	1,762
	14 BARS	14 BARS	14 BARS	18'-4"		8'-2"		8'-2"			
20P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
20P509	4 SETS OF	4 SETS OF	8 SETS OF	16'-6" TO	1	7'-3" TO	2'-3"	7'-3" TO		6"	576
	4 BARS	4 BARS	4 BARS	18'-0"		8'-0"		8'-0"			
20P801	12	12	24	38'-4"	ST.						2,456
20P1001	31	31	62	15'-4"	11	12'-6"					4,091
20P1002	22	22	44	23'-4"	11	20'-6"					4,418
20P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
20P1102	9	9	18	38'-4"	ST.						3,666
20P1103	46	46	92	44'-3"	ST.						21,629
20P1104	46	46	92	11'-11"	13	10'-3"	2'-0"				5,825
										TOTAL WEIGHT	53,309

PIERS

MARK	Nº REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
PIER NO. 21											
21P401	78	78	156	7'-8"	9	2'-11"	3'-2"				799
21P402	78	78	156	8'-6"	ST.						886
21P403	195	195	390	4'-1"	14	3'-2"	8"				1,064
21P501	8	8	16	15'-9"	8	2'-6"	13'-5"	13'-0"	3'-2"		263
21P502	2	2	4	12'-0"	ST.						50
21P503	2	2	4	19'-10"	ST.						83
21P504	2	2	4	28'-0"	ST.						117
21P505	14	14	28	6'-2"	1	1'-8"	3'-1"	1'-8"			180
21P506	72	72	144	5'-4"	1	1'-8"	2'-3"	1'-8"			801
21P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-10" TO	1	4'-11" TO	2'-3"	4'-11" TO		6"	1,762
	14 BARS	14 BARS	14 BARS	18'-4"		8'-2"		8'-2"			
21P508	15	15	30	7'-9"	1	2'-5"	3'-2"	2'-5"			242
21P509	4 SETS OF	4 SETS OF	8 SETS OF	16'-6" TO	1	7'-3" TO	2'-3"	7'-3" TO		6"	576
	4 BARS	4 BARS	4 BARS	18'-0"		8'-0"		8'-0"			
21P801	12	12	24	38'-4"	ST.						2,456
21P1001	31	31	62	15'-4"	11	12'-6"					4,091
21P1002	22	22	44	23'-4"	11	20'-6"					4,418
21P1101	9	9	18	47'-6"	1	4'-11"	38'-4"	4'-11"			4,543
21P1102	9	9	18	38'-4"	ST.						3,666
21P1103	46	46	92	46'-3"	ST.						22,607
21P1104	46	46	92	11'-11"	13	10'-3"	2'-0"				5,825
										TOTAL WEIGHT	54,429

FOR BENDING DIAGRAMS AND NOTE, SEE SHEET 35/43

ALTERNATE - 2

35/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING STEEL LIST

BRIDGE Nº ERI - 2-19.11 L / R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233 + 43.75 TO
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

A-C-L form no. B-1

CALC. DATE		OHIO
CHKD. DATE		F.H.W.A. REGION 5

217H 326

ERIE COUNTY
ERI-2-18.38

PIERS

MARK	NO REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				PIER NO. 22							
22P401	74	74	148	8'-5"	9	3'-2"	3'-8"				832
22P402	74	74	148	9'-0"	ST.						890
22P403	185	185	370	4'-7"	14	3'-8"	8"				1,133
22P404	45	45	90	7'-5"	1	2'-10"	1'-11"	2'-10"			446
22P405	20	20	40	9'-3"	ST.						247
22P406	5	5	10	3'-10"	ST.						26
22P501	2 SETS OF	2 SETS OF	4 SETS OF	13'-9" TO	1	4'-11"TO	4'-2"	4'-11"TO		6"	1,168
	16 BARS	16 BARS	16 BARS	21'-3"		8'-8"		8'-8"			
22P502	54	54	108	7'-3"	1	1'-8"	4'-2"	1'-8"			817
22P503	14	14	28	8'-9"	1	2'-5"	4'-2"	2'-5"			256
22P504	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
22P505	2	2	4	13'-0"	ST.						54
22P506	2	2	4	22'-6"	ST.						94
22P507	2	2	4	32'-6"	ST.						136
22P508	2 SETS OF	2 SETS OF	4 SETS OF	19'-9" TO	1	7'-11"TO	4'-2"	7'-11"TO		6"	342
	4 BARS	4 BARS	4 BARS	21'-3"		8'-8"		8'-8"			
22P801	12	12	24	42'-5"	ST.						2,718
22P1001	37	37	74	17'-4"	11	14'-6"					5,519
22P1002	18	18	36	23'-4"	11	20'-6"					3,614
22P1101	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
22P1102	9	9	18	42'-5"	ST.						4,057
22P1103	44	44	88	11'-10"	13	10'-2"	2'-0"				5,532
22P1104	44	44	88	44'-10"	ST.						20,961
										TOTAL WEIGHT	54,070
				PIER NO. 23							
23P401	70	70	140	8'-5"	9	3'-2"	3'-8"				787
23P402	70	70	140	9'-0"	ST.						842
23P403	175	175	350	4'-7"	14	3'-8"	8"				1,072
23P501	4 SETS OF	4 SETS OF	8 SETS OF	12'-4" TO	1	4'-11"TO	2'-9"	4'-11"TO		6"	2,147
	16 BARS	16 BARS	16 BARS	19'-10"		8'-8"		8'-8"			
23P502	80	80	160	5'-9"	1	1'-8"	2'-9"	1'-8"			960
23P503	14	14	28	8'-3"	1	2'-5"	3'-8"	2'-5"			241
23P504	14	14	28	6'-8"	1	1'-8"	3'-7"	1'-8"			195
23P505	2	2	4	13'-0"	ST.						54
23P506	2	2	4	22'-6"	ST.						94
23P507	2	2	4	32'-6"	ST.						136
23P508	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
23P509	4 SETS OF	4 SETS OF	8 SETS OF	19'-9" TO	1	7'-11"TO	2'-9"	7'-11"TO		6"	684
	4 BARS	4 BARS	4 BARS	21'-3"		8'-8"		8'-8"			

PIERS

MARK	NO REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				PIER NO. 23 CONT.							
23P801	12	12	24	42'-5"	ST.						2,718
23P1101	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
23P1102	13	13	26	42'-5"	ST.						5,859
23P1103	44	44	88	12'-0"	13	10'-2"	2'-0"				5,611
23P1104	44	44	88	43'-1"	ST.						20,143
23P1105	37	37	74	17'-8"	11	14'-6"					6,946
23P1106	18	18	36	23'-8"	11	20'-6"					4,527
										TOTAL WEIGHT	58,244
				PIER NO. 24							
24P401	58	58	116	8'-5"	9	3'-2"	3'-8"				652
24P402	58	58	116	9'-0"	ST.						697
24P403	174	174	348	4'-7"	14	3'-8"	8"				1,065
24P501	15	15	30	12'-7"	9	4'-10"	5'-8"				394
24P502	2 SETS OF	2 SETS OF	4 SETS OF	15'-4" TO	ST.					5"	1,139
	15 BARS	15 BARS	15 BARS	21'-1"							
24P503	15	15	30	10'-11"	10	1'-10"	3'-0"	2'-10"	5'-8"		342
24P504	11	11	22	9'-1"	1	5'-8"	1'-10"				208
24P505	1	1	2	7'-2"	1	1'-10"	3'-9"	1'-10"			15
24P506	1	1	2	8'-8"	1	1'-10"	5'-3"	1'-10"			18
24P507	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
24P508	2	2	4	13'-0"	ST.						54
24P509	2	2	4	22'-6"	ST.						94
24P510	2	2	4	32'-6"	ST.						136
24P511	14	14	28	7'-0"	1	1'-10"	3'-7"	1'-10"			204
24P512	76	76	152	6'-3"	1	1'-10"	2'-10"	1'-10"			991
24P513	4 SETS OF	4 SETS OF	8 SETS OF	12'-5" TO	1	4'-11"TO	2'-10"	4'-11"TO		6-1/8"	2,003
	15 BARS	15 BARS	15 BARS	19'-7"		8'-6"		8'-6"			
24P514	11	11	22	8'-3"	1	2'-5"	3'-8"	2'-5"			189
24P515	4 SETS OF	4 SETS OF	8 SETS OF	17'-9" TO	1	7'-7" TO	2'-10"	7'-7" TO		6"	617
	4 BARS	4 BARS	4 BARS	19'-3"		8'-4"		8'-4"			
24P801	12	12	24	42'-5"	ST.						2,718
24P1001	52	52	104	23'-4"	11	20'-6"					10,442
24P1002	25	25	50	35'-4"	11	32'-6"					7,602

PIERS

MARK	NO REQUIRED W.B.	E.B.	TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				PIER NO. 24 CONT.							
24P1101	37	37	74	27'-0"	13	25'-4"	2'-0"				10,615
24P1102	2 SETS OF	2 SETS OF	4 SETS OF	12'-4" TO	13	10'-6"TO	2'-0"				893
	3 BARS	3 BARS	3 BARS	15'-8"		14'-6"					
24P1103	8	8	16	27'-5"	13	25'-9"	2'-0"				2,331
24P1104	1	1	2	27'-0"	18	1'-6"	1'-8"	23'-8"	6'-6"		287
24P1105	60	60	120	13'-3"	ST.						8,448
24P1106	30	30	60	21'-0"	ST.						6,694
24P1107	30	30	60	36'-4"	ST.						11,582
24P1108	13	13	26	42'-5"	ST.						5,859
24P1109	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
										TOTAL WEIGHT	81,517
				PIER NO. 25							
25P401	62	62	124	8'-5"	9	3'-2"	3'-8"				697
25P402	62	62	124	9'-0"	ST.						745
25P403	186	186	372	4'-7"	14	3'-8"	8"				1,139
25P501	15	15	30	12'-7"	9	4'-10"	5'-8"				394
25P502	2 SETS OF	2 SETS OF	4 SETS OF	15'-4" TO	ST.					5"	1,139
	15 BARS	15 BARS	15 BARS	21'-1"							
25P503	15	15	30	10'-11"	10	1'-10"	3'-0"	2'-10"	5'-8"		342
25P504	11	11	22	9'-1"	1	1'-10"	5'-8"	1'-10"			208
25P505	1	1	2	7'-2"	1	1'-10"	3'-9"	1'-10"			15
25P506	1	1	2	8'-8"	1	1'-10"	5'-3"	1'-10"			18
25P507	8	8	16	17'-8"	8	2'-6"	15'-2"	14'-10"	3'-7"		295
25P508	2	2	4	13'-0"	ST.						54
25P509	2	2	4	22'-6"	ST.						94
25P510	2	2	4	32'-6"	ST.						136
25P511	14	14	28	7'-0"	1	1'-10"	3'-7"	1'-10"			204
25P512	76	76	152	6'-3"	1	1'-10"	2'-10"	1'-10"			991
25P513	4 SETS OF	4 SETS OF	8 SETS OF	12'-5" TO	1	4'-11"TO	2'-10"	4'-11"TO		6 -1/8"	2,003
	15 BARS	15 BARS	15 BARS	19'-7"		8'-6"		8'-6"			
25P514	11	11	22	8'-3"	1	2'-5"	3'-8"	2'-5"			189
25P515	4 SETS OF	4 SETS OF	8 SETS OF	17'-9" TO	1	7'-7" TO	2'-10"	7'-7" TO		6"	617
	4 BARS	4 BARS	4 BARS	19'-3"		8'-4"		8'-4"			
25P801	12	12	24	42'-5"	ST.						2,718

ALTERNATE - 2

40/43

FOR BENDING DIAGRAMS AND NOTE, SEE SHEET 35/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING STEEL LIST

BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.G.	K.L.M.	L.E.D.	11/4/85	

A-C-L form no. B-1

CALC.		OHIO
DATE		F.H.W.A. REGION 5
CHKD.		
DATE		

217/326

ERIE COUNTY
ERI - 2-18.38

PIERS

MARK	Nº REQUIRED W.B.	Nº REQUIRED E.B.	Nº REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS D	INCRM.	WEIGHT LBS.
				PIER NO. 25 CONT.							
25P1001	52	52	104	23'-4"	11	20'-6"					10,442
25P1002	25	25	50	35'-4"	11	32'-6"					7,602
25P1101	37	37	74	27'-0"	13	25'-4"	2'-0"				10,615
25P1102	2 SETS OF	2 SETS OF	4 SETS OF	12'-4" TO	13	10'-6" TO	2'-0"				893
	3 BARS	3 BARS	3 BARS	15'-8"		14'-6"					
25P1103	8	8	16	27'-5"	13	15'-9"	2'-0"				2,331
25P1104	1	1	2	27'-0"	18	1'-6"	1'-8"	23'-8"	6'-6"		287
25P1105	60	60	120	13'-3"	ST.						8,448
25P1106	30	30	60	21'-0"	ST.						6,694
25P1107	30	30	60	38'-1"	ST.						12,140
25P1108	13	13	26	42'-5"	ST.						5,859
25P1109	9	9	18	51'-7"	1	4'-11"	42'-5"	4'-11"			4,933
									TOTAL WEIGHT		82,242
				PIER NO. 26							
26P401	36	36	72	7'-0"	9	2'-9"	2'-8"				337
26P402	36	36	72	9'-6"	ST.						457
26P403	90	90	180	3'-7"	14	2'-8"	8"				431
26P501	8	8	16	16'-10"	8	1'-8"	15'-2"	14'-8"	3'-9"		281
26P502	2	2	4	13'-0"	ST.						54
26P503	2	2	4	22'-1"	ST.						92
26P504	2	2	4	31'-7"	ST.						132
26P505	14	14	28	5'-8"	1	1'-8"	2'-7"	1'-8"			165
26P506	80	80	160	5'-2"	1	1'-8"	2'-1"	1'-8"			862
26P507	4 SETS OF	4 SETS OF	8 SETS OF	11'-8" TO	1	4'-11" TO	2'-1"	4'-11" TO		6-3/8"	1,930
	15 BARS	15 BARS	15 BARS	19'-2"		8'-8"		8'-8"			
26P508	15	15	30	7'-3"	1	2'-5"	2'-8"	2'-5"			227
26P509	4 SETS OF	4 SETS OF	8 SETS OF	17'-4" TO	1	7'-9" TO	2'-1"	7'-9" TO		6"	604
	4 BARS	4 BARS	4 BARS	18'-10"		8'-6"		8'-6"			
26P801	12	12	24	42'-5"	ST.						2,718
26P802	46	46	92	26'-0"	ST.						6,387
26P803	46	46	92	8'-3"	13	7'-0"	1'-6"				2,027
26P1001	31	31	62	14'-4"	11	11'-6"					3,824
26P1002	16	16	32	23'-4"	11	20'-6"					3,213
26P1101	12	12	24	42'-5"	ST.						5,409
26P1102	8	8	16	51'-7"	1	4'-11"	42'-5"	4'-11"			4,385
									TOTAL WEIGHT		33,535

FOR BENDING DIAGRAMS AND NOTE, SEE SHEET 35/43

ALTERNATE - 2

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING STEEL LIST

BRIDGE Nº ERI - 2-19.11 L / R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD

ERIE COUNTY STA. 1233 + 43.75 TO
ERI - 2 - 18.38 STA. 1259 + 37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
I.M.B.	D.R.J.	K.L.M.	L.E.D.	11/4/85	

A-C-L form no. B-1

FEB 5 1992

EPOXY COATED REINFORCING STEEL

CALC. DATE
CHKD. DATE
OHIO
F.H.W.A. REGION 5

217K 326

ERIE COUNTY
ERI-2-18.38

ABUTMENTS

MARK	NO REQUIRED W.B.	NO REQUIRED E.B.	NO REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				ABUTMENT NO. 1							
1A502E	1	1	2	30'-0"	ST.						63
1A503E	1	1	2	13'-4"	ST.						28
1A512E	16	16	32	13'-10"	ST.						462
1A513E	16	16	32	4'-4"	ST.						145
1A514E	12	12	24	3'-0"	ST.						75
1A515E	12	12	24	5'-3"	15	2'-2"	2'-5"	7-1/2"			131
1A516E	16	16	32	2'-8"	12	2'-1"					89
1A517E	16	16	32	4'-7"	ST.						153
1A605E	40	40	80	5'-1"	1	2'-3"	11"	2'-3"			611
1A612E	12	12	24	3'-9"	19	9"	6"	8-1/2"	2'-5"		135
1A613E	2 SETS OF 5 BARS	2 SETS OF 5 BARS	4 SETS OF 5 BARS	3'-7" TO 3'-9"	19	7" TO 9"	2" TO 6"	8-1/2"	2'-5"		110
1A614E	6	6	12	3'-7"	19	7"	2"	8-1/2"	2'-5"		66
1A805E	27	27	54	4'-10"	20	2'-7"	1'-0"	1'-0"			697
										TOTAL WEIGHT	2,765
				ABUTMENT NO. 2							
2A505E	2	2	4	22'-7"	ST.						94
2A516E	16	16	32	5'-3"	15	2'-2"	2'-5"	7 1/2"			176
2A517E	16	16	32	3'-0"	ST.						100
2A518E	16	16	32	2'-8"	12	2'-1"					90
2A519E	16	16	32	4'-7"	ST.						152
2A520E	16	16	32	16'-10"	ST.						562
2A521E	16	16	32	4'-4"	ST.						144
2A604E	41	41	82	5'-1"	1	2'-3"	11"	2'-3"			626
2A618E	16	16	32	3'-9"	19	9"	6"	8 1/2"	2'-5"		180
2A619E	2 SETS OF 5 BARS	2 SETS OF 5 BARS	4 SETS OF 5 BARS	3'-7" TO 3'-9"	19	7" TO 9"	2" TO 6"	8 1/2"	2'-5"		110
2A620E	6	6	12	3'-7"	19	7"	2"	8 1/2"	2'-5"		64
2A806E	27	27	54	4'-10"	29	2'-7"	1'-0"	1'-0"			697
										TOTAL	2,995

SUPERSTRUCTURE

MARK	NO REQUIRED W.B.	NO REQUIRED E.B.	NO REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				UNIT NO. 1							
1S401E	1,365	1,365	2,730	30'-0"	ST.						54,709
1S402E	65	65	130	21'-0"	ST.						1,824
1S501E	924	924	1,848	30'-0"	ST.						57,824
1S502E	44	44	88	28'-0"	ST.						2,570
1S503E	1,069	1,069	2,138	30'-3"	ST.						67,456
1S504E	1,069	1,069	2,138	12'-11"	ST.						28,803
1S505E	834	834	1,668	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,364
1S506E	834	834	1,668	2'-5"	13	1'-8"	10-1/2"				4,204
1S507E	834	834	1,668	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,134
1S508E	8	8	16	11'-2"	ST.						186
1S509E	304	304	608	5'-8"	ST.						3,594
1S510E	224	224	448	12'-11"	ST.						6,036
1S511E	8	8	16	12'-6"	ST.						209
1S512E	40	40	80	5'-8"	3	1'-0"	1'-7"				473
1S513E	40	40	80	6'-2"	3	1'-3"	1'-7"				515
1S516E	288	288	576	40'-0"	ST.						24,031
1S517E	208	208	416	6'-8"	ST.						2,893
1S518E	208	208	416	7'-8"	ST.						3,326
1S519E	196	196	392	9'-10"	6	4'-0"	8"	10"			4,020
1S520E	168	168	336	12'-10"	6	5'-0"	1'-8"	10"			4,497
1S521E	30	30	60	4'-0"	ST.						250
1S601E	1,069	1,069	2,138	26'-1"	ST.						83,761
1S602E	1,069	1,069	2,138	17'-5"	ST.						55,930
1S701E	348	348	696	40'-0"	ST.						56,905
1S801E	6	6	12	38'-6"	ST.						1,234
1S802E	104	104	208	7'-8"	ST.						4,258
1S803E	78	78	156	8'-4"	ST.						3,470
1S804E	15	15	30	2'-0"	ST.						160
										TOTAL WEIGHT	487,636

MARK	NO REQUIRED W.B.	NO REQUIRED E.B.	NO REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				UNIT NO. 2							
2S401E	1,365	1,365	2,730	30'-0"	ST.						54,709
2S402E	65	65	130	19'-9"	ST.						1,715
2S501E	924	924	1,848	30'-0"	ST.						57,824
2S502E	44	44	88	26'-9"	ST.						2,455
2S503E	1,067	1,067	2,134	30'-3"	ST.						67,329
2S504E	1,067	1,067	2,134	12'-11"	ST.						28,750
2S505E	832	832	1,664	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,351
2S506E	832	832	1,664	2'-5"	13	1'-8"	10'1/2"				4,194
2S507E	832	832	1,664	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,112
2S508E	16	16	32	11'-2"	ST.						373
2S509E	304	304	608	5'-8"	ST.						3,594
2S510E	224	224	448	12'-11"	ST.						6,036
2S511E	80	80	160	6'-2"	3	1'-3"	1'-7"				1,029
2S516E	288	288	576	40'-0"	ST.						24,031
2S517E	208	208	416	6'-8"	ST.						2,893
2S518E	208	208	416	7'-8"	ST.						3,326
2S519E	196	196	392	9'-10"	6	4'-0"	8"	10"			4,020
2S520E	168	168	336	12'-10"	6	5'-0"	1'-8"	10"			4,497
2S521E	30	30	60	4'-0"	ST.						250
2S601E	1,067	1,067	2,134	26'-1"	ST.						83,604
2S602E	1,067	1,067	2,134	17'-5"	ST.						55,825
2S701E	348	348	696	40'-0"	ST.						56,905
2S801E	6	6	12	38'-6"	ST.						1,234
2S802E	104	104	208	7'-8"	ST.						4,258
2S803E	78	78	156	8'-4"	ST.						3,471
2S804E	15	15	30	2'-0"	ST.						160
										TOTAL WEIGHT	486,945

FOR BENDING DIAGRAMS AND NOTE, SEE SHEET 35/43

ALTERNATE - 2

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING STEEL LIST
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	D.R.J.	I.M.B.	L.E.D.	11/4/85	

A-C-L form no. B-1

FEB 5 1982

EPOXY COATED REINFORCING STEEL

MARK	Nº REQUIRED W.B.	Nº REQUIRED E.B.	Nº REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				UNIT NO. 3							
3S401E	1,560	1,495	3,055	30'-0"	ST.						61,222
3S402E	1 SET OF		1 SET OF	11'-7" TO	ST.					2-3/4"	676
	57 BARS		57 BARS	23'-11"							
3S403E	4		4	23'-11"	ST.						64
3S404E	4		4	11'-7"	ST.						31
3S405E		1 SET OF	1 SET OF	14'-2" TO	ST.					2-11/16"	776
		57 BARS	57 BARS	26'-7"							
3S406E		4	4	26'-7"	ST.						71
3S407E		4	4	14'-2"	ST.						38
3S501E	1,056	1,012	2,068	30'-0"	ST.						64,708
3S502E	1 SET OF		1 SET OF	19'-7" TO	ST.					2-11/16"	1,182
	44 BARS		44 BARS	31'-11"							
3S503E	1,200	1,155	2,355	30'-3"	ST.						74,302
3S504E	1,200	1,155	2,355	12'-11"	ST.						31,727
3S505E	943	908	1,851	3'-1"	5	9"	6"	8-1/2"	9-1/2"		5,953
3S506E	943	908	1,851	2'-5"	13	1'-8"	10-1/2"				4,666
3S507E	943	908	1,851	5'-3"	15	2'-2"	2'-5"	7-1/2"			10,136
3S508E		1 SET OF	1 SET OF	21'-10" TO	ST.					3-7/16"	1,287
		44 BARS	44 BARS	34'-3"							
3S509E	1 SET OF	1 SET OF	2 SETS OF	1'-6" TO	ST.					2-0-3/8"	866
	20 BARS	20 BARS	20 BARS	40'-0"							
3S510E	240	232	472	12'-11"	ST.						6,359
3S511E	348	340	688	5'-8"	ST.						4,066
3S512E	12		12	14'-3"	ST.						178
3S513E	4	12	16	14'-8"	ST.						245
3S514E	4	4	8	11'-11"	ST.						99
3S515E	8	8	16	10'-9"	ST.						179
3S516E	80	80	160	6'-2"	3	1'-3"	1'-7"				1,029
3S517E	240	240	480	6'-8"	ST.						3,338
3S518E	240	240	480	7'-8"	ST.						3,838
3S519E	224	224	448	9'-10"	6	4'-0"	8"	10"			4,595
3S520E	196	196	392	12'-10"	6	5'-0"	1'-8"	10"			5,247
3S521E	35	35	70	4'-0"	ST.						292
3S522E	336	336	672	40'-0"	ST.						28,036
3S601E	1,200	1,155	2,355	26'-1"	ST.						92,262
3S602E	1,200	1,155	2,355	17'-5"	ST.						61,607
3S603E	1 SET OF	1 SET OF	2 SETS OF	1'-6" TO	ST.						1,247
	20 BARS	20 BARS	20 BARS	40'-0"							
3S701E	406	406	812	40'-0"	ST.						66,389
3S801E	6	6	12	38'-6"	ST.						1,234
3S802E	120	120	240	7'-8"	ST.						4,913
3S803E	90	90	180	8'-4"	ST.						4,005
3S804E	15	15	30	2'-0"	ST.						160
										TOTAL WEIGHT	547,023

MARK	Nº REQUIRED W.B.	Nº REQUIRED E.B.	Nº REQUIRED TOTAL	LENGTH	TYPE	DIMENSIONS A	B	C	D	INCRM.	WEIGHT LBS.
				UNIT NO. 4							
4S401E	1,386	1,386	2,772	30'-0"	ST.						55,551
4S402E	63	63	126	17'-4"	ST.						1,459
4S501E	836	836	1,672	30'-0"	ST.						52,317
4S502E	38	38	76	14'-8"	ST.						1,955
4S503E	1,112	1,112	2,224	32'-2"	ST.						74,615
4S504E	1,112	1,112	2,224	12'-10"	ST.						29,769
4S505E	866	866	1,732	3'-1"	5	9"	6"	8-1/2"	9'1/2"		5,569
4S506E	866	866	1,732	2'-3"	13	1'-6"	10-1/2"				4,065
4S507E	866	866	1,732	5'-3"	15	2'-2"	2'-5"	7-1/2"			9,484
4S508E	40	40	80	14'-2"	ST.						1,182
4S509E	152	152	304	13'-8"	ST.						4,333
4S510E	336	336	672	6'-8"	ST.						4,673
4S511E	8	8	16	15'-6"	ST.						259
4S512E	10	10	20	38'-3"	ST.						798
4S601E	1112	1112	2224	27'-6"	STR.						91,862
4S602E	1112	1112	2224	17'-10"	STR.						59,571
4S603E	56	56	112	22'-6"	STR.						3,785
4S604E	56	56	112	26'-0"	STR.						4,374
4S605E	280	280	560	30'-0"	STR.						25,234
4S606E	56	56	112	27'-8"	STR.						4,654
4S607E	56	56	112	17'-8"	STR.						2,972
4S608E	64	64	128	3'-8"	23	1'-0"	1'-1"	1'-9"	9"		705
4S609E	56	56	112	25'-2"	STR.						4,234
4S610E	56	56	112	13'-0"	STR.						2,187
4S611E	56	56	112	20'-0"	STR.						3,364
										TOTAL WEIGHT	448,971

FOR BENDING DIAGRAMS AND NOTE, SEE SHEET 35/43

CALC. ____ DATE ____
CHKD. ____ DATE ____
OHIO F.H.W.A. REGION 5

217L 326

ERIE COUNTY
ERI-2-18.38

ALTERNATE-2

43/43

adache - ciuni - lynn associates
CONSULTING ENGINEERS CLEVELAND, OHIO 44131

REINFORCING STEEL LIST
BRIDGE Nº ERI-2-19.11 L/R
S.R. 2 OVER HURON RIVER
N. & W. R.R. & RIVER ROAD
ERIE COUNTY STA. 1233+43.75 TO
ERI-2-18.38 STA. 1259+37.37

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
K.L.M.	J.D.P.	I.M.B.	L.E.D.	11/4/85	

A-C-L form no. B-1